

No. 4789. AGREEMENT CONCERNING THE ADOPTION OF UNIFORM CONDITIONS OF APPROVAL AND RECIPROCAL RECOGNITION OF APPROVAL FOR MOTOR VEHICLE EQUIPMENT AND PARTS. DONE AT GENEVA ON 20 MARCH 1958<sup>1</sup>

RECTIFICATION of the authentic English and French texts of Regulation No. 14<sup>2</sup> annexed to the above-mentioned Agreement

PROCÈS-VERBAL OF RECTIFICATION OF REGULATION NO. 14 ANNEXED  
TO THE AGREEMENT

The Secretary-General of the United Nations, acting as depositary of the Agreement concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, done at Geneva on 20 March 1958,

Whereas it appears that the final text of Regulation No. 14 "Uniform provisions concerning the approval of vehicles with regard to safety-belt anchorages on private cars" annexed to the above-mentioned Agreement contains certain technical errors in paragraphs 5.4.1.3 and 5.5.2,

Whereas it was decided to delete paragraph 5.4.1.3 and, in paragraph 5.5.2, to replace "In the case of a two-door car" by "In vehicles where such devices are used",

Has caused the said errors to be corrected accordingly.

IN WITNESS WHEREOF I, Erik Suy, Under-Secretary-General, the Legal Counsel, have signed this Procès-verbal, which applies to the copies of the final text of the Regulation established on 21 July 1970, at the Headquarters of the United Nations, New York, on 10 August 1979.

[Signed]  
ERIK SUY

*Authentic texts of the Procès-verbal of rectification: English and French.*

*Registered ex officio on 10 August 1979.*

*Consolidated text of Regulation No. 14 incorporating the 01 series of amendments*

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES WITH REGARD TO SAFETY-BELT ANCHORAGES ON PASSENGER CARS

1. SCOPE

This Regulation applies to anchorages for safety belts for adult occupants of forward-facing seats in passenger cars and in vehicles derived from them.

2. DEFINITIONS

For the purposes of this Regulation,

- 2.1. "Approval of a vehicle" means the approval of a vehicle type equipped with anchorages for given types of safety belts;

<sup>1</sup> United Nations, *Treaty Series*, vol. 335, p. 211; for subsequent actions, see references in Cumulative Indexes Nos. 4 to 12, as well as annex A in volumes 801, 802, 808, 811, 814, 815, 818, 820, 825, 826, 829, 830, 834, 835, 848, 850, 854, 856, 857, 858, 860, 861, 865, 866, 871, 872, 882, 887, 891, 892, 893, 897, 899, 915, 917, 926, 932, 940, 943, 945, 950, 951, 955, 958, 960, 961, 963, 966, 973, 974, 978, 981, 982, 985, 986, 993, 995, 997, 1003, 1006, 1010, 1015, 1019, 1020, 1021, 1024, 1026, 1031, 1035, 1037, 1038, 1039, 1040, 1046, 1048, 1050, 1051, 1055, 1059, 1060, 1065, 1066, 1073, 1078, 1079, 1088, 1092, 1095, 1097, 1098, 1106, 1110, 1111, 1112, 1122, 1126, 1130, 1135, 1136, 1138 and 1139.

<sup>2</sup> *Ibid.*, vol. 723, p. 302.

- 2.2. “*Vehicle type*” means a category of power-driven vehicles which do not differ in such essential respects as the dimensions, lines and materials of components of the vehicle structure or seat structure to which the anchorages are attached;
- 2.3. “*Belt anchorages*” means the parts of the vehicle structure or the seat structure or any other part of the vehicle to which the safety belt assemblies are to be secured;
- 2.4. “*Effective belt anchorage*” means the point used to determine conventionally, as specified in point 5.4, the angle of each part of the safety belt in relation to the wearer, that is, the point to which a strap would need to be attached to provide the same lie as the intended lie of the belt when worn, and which may or may not be the actual belt anchorage depending on the configuration of the safety belt hardware at its attachment to the belt anchorage.
  - 2.4.1. For example, in the case
    - 2.4.1.1. Where a safety belt incorporates a rigid part which is attached to a lower belt anchorage and which is either fixed or free to swivel, the effective belt anchorage for all positions of seat adjustment is the point where the strap is attached to that rigid part;
    - 2.4.1.2. Where a strap guide is used on the vehicle structure or on the seat structure, the middle point of the guide at the place where the strap leaves the guide on the belt wearer’s side, shall be considered as the effective belt anchorage; and,
    - 2.4.1.3. Where the belt runs directly from the wearer to a retractor attached to the vehicle structure or the seat structure without an intervening strap guide, the effective belt anchorage shall be considered as being the intersection of the axis of the reel for storing the strap with the plane passing through the centre line of the strap on the reel;
  - 2.5. “*Floor*” means the lower part of the vehicle body-work connecting the vehicle side walls. In this context it includes ribs, swages and possibly other reinforcements, even if they are below the floor, such as longitudinal and transverse members;
  - 2.6. “*Seat*” means a structure which may or may not be integral with the vehicle structure complete with trim, intended to seat one adult person. The term covers both an individual seat or part of a bench seat intended to seat one person;
  - 2.7. “*Group of seats*” means either a bench-type seat, or seats which are separate but side by side (i.e., with the foremost anchorages of one seat in line with or forward of the rearmost anchorages and in line with or behind the foremost anchorages of another seat) and accommodate one or more seated adult person;
  - 2.8. “*Bench seat*” means a structure complete with trim, intended to seat more than one adult person;
  - 2.9. “*Adjustment system*” means the device by which the seat or its parts can be adjusted to a position suited to the morphology of the seated occupant; this device may, in particular, permit of:
    - 2.9.1. Longitudinal displacement;
    - 2.9.2. Vertical displacement;
    - 2.9.3. Angular displacement;
  - 2.10. “*Seat anchorage*” means the system by which the seat assembly is secured to the vehicle structure, including the affected parts of the vehicle structure;
  - 2.11. “*Folding (tip-up) seat*” means an auxiliary seat intended for occasional use and which is normally folded out of the way.
3. APPLICATION FOR APPROVAL
  - 3.1. The application for approval of a vehicle type with regard to the belt anchorages shall be submitted by the vehicle manufacturer or by his duly accredited representative.
  - 3.2. It shall be accompanied by the undermentioned documents in triplicate and by the following particulars:

- 3.2.1. Drawings of the vehicle structure on an appropriate scale, showing the sites of the belt anchorages, and drawings showing the structure in sufficient detail;
- 3.2.2. A specification of the materials used which may affect the strength of the belt anchorages;
- 3.2.3. A technical description of the belt anchorages.
- 3.2.4. In the case of belt anchorages affixed to the seat structure:
  - 3.2.4.1. Detailed description of the vehicle type with regard to the design of the seats, of the seat anchorages and of their adjustment and locking systems;
  - 3.2.4.2. Drawings, on an appropriate scale and in sufficient detail, of the seats, of their anchorage to the vehicle, and of their adjustment and locking systems.
- 3.3. At the option of the manufacturer, a vehicle representative of the vehicle type to be approved or the parts of the vehicle considered essential for the belt anchorage tests by the technical service conducting approval tests shall be submitted to the service.
4. APPROVAL
  - 4.1. If the vehicle type submitted for approval pursuant to this Regulation meets the requirements of paragraphs 5 and 6 of this Regulation, approval of that vehicle type shall be granted.
  - 4.2. An approval number shall be assigned to each type approved. The same Contracting Party may not assign the same number to another vehicle type as defined in paragraph 2.2 above.
  - 4.3. Notice of approval or of refusal of approval of a vehicle type pursuant to this Regulation shall be communicated to the Parties to the Agreement which apply this Regulation by means of a form conforming to the model in annex 1 to the Regulation and of dimensional drawings of the belt anchorage supplied, by the applicant for approval, in a format not exceeding A 4 (210 × 297 mm) or folded to that format and on an appropriate scale.
  - 4.4. 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:
    - 4.4.1. A circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval\*;
    - 4.4.2. The number of this Regulation, to the right of the circle prescribed in paragraph 4.4.1.
  - 4.5. 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 4.4.1 need not be repeated; in such a case the additional numbers and 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 4.4.1.
  - 4.6. The approval mark shall be clearly legible and be indelible.
  - 4.7. The approval mark shall be placed close to or on the vehicle data plate affixed by the manufacturer.
  - 4.8. Annex 2 to this Regulation gives examples of arrangements of the approval mark.

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\* 1 for the Federal Republic of Germany, 2 for France, 3 for Italy, 4 for the Netherlands, 5 for Sweden, 6 for Belgium, 7 for Hungary, 8 for Czechoslovakia, 9 for Spain, 10 for Yugoslavia, 11 for the United Kingdom, 12 for Austria, 13 for Luxembourg, 14 for Switzerland, 15 for the German Democratic Republic, 16 for Norway and 17 for Finland; subsequent numbers shall be assigned to other countries in the chronological order in which they ratify the Agreement concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, or in which they accede to that Agreement, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

## 5. SPECIFICATIONS

### 5.1. *Definitions* (see annex 3)

- 5.1.1. Point H is a reference point determined by the procedure prescribed in annex 4 to this Regulation.
- 5.1.2. Reference line is a straight line which, either on a test manikin having the weight and dimensions of a fiftieth percentile adult male or on a test manikin having identical characteristics, passes through the joint of the leg with the pelvis and the joint of the neck with the thorax. On the manikin reproduced in annex 4 to this Regulation, for determining the H point, the reference line is that shown in Fig. 1 in the appendix to that annex.
- 5.1.3. Points B<sub>1</sub> and B<sub>2</sub> are the lower effective belt anchorages.
- 5.1.4. Point C is a point situated 450 mm vertically above point H.
- 5.1.5. The angles  $\alpha_1$  and  $\alpha_2$  are respectively the angles between a horizontal plane and planes perpendicular to the median longitudinal plane of the vehicle and passing through point H and points B<sub>1</sub> and B<sub>2</sub>.
- 5.1.6. The angle  $\alpha$  is the angle between a horizontal plane and a plane perpendicular to the median longitudinal plane of the vehicle and passing through point H and point B.
- 5.1.7. S is the distance in millimetres of the effective upper belt anchorages from a reference plane P parallel to the longitudinal median plane of the vehicle defined as follows:
  - 5.1.7.1. If the seating position is well defined by the shape of the seat, the plane P shall be the median plane of this seat.
  - 5.1.7.2. In the absence of a well defined position:
    - 5.1.7.2.1. The plane P for the driver shall be a vertical plane passing through the centre of the steering wheel in its mean position if adjustable;
    - 5.1.7.2.2. The plane P for the front outboard passenger shall be symmetrical with that of the driver.
    - 5.1.7.2.3. The plane P for the rear outboard seating position shall be that specified by the manufacturer on condition the following limits for distance A between the longitudinal median plane of the vehicle and plane P are respected:
      - A is equal or more than 200 mm if the bench seat has been designed to accommodate two passengers only,
      - A is equal or more than 300 mm if the bench seat has been designed to accommodate more than two passengers.
- 5.2. *General specifications*
  - 5.2.1. Anchorages for safety belts shall be so designed, made and situated as to:
    - 5.2.1.1. Enable the installation of a suitable safety belt. The belt anchorages of the front outboard positions shall be suitable for safety belts incorporating a retractor and pulley taking into consideration in particular the strength characteristics of the belt anchorages, unless the manufacturer supplies the vehicle equipped with other types of safety belts which incorporate retractors. If the anchorages are suitable only for particular types of safety belts, these types shall be stated on the form mentioned in paragraph 4.3 above;
    - 5.2.1.2. Reduce to a minimum the risk of the belt's slipping when worn correctly;
    - 5.2.1.3. Reduce to a minimum the risk of strap damage due to contact with sharp rigid parts of the vehicle or seat structures;
    - 5.2.1.4. Enable the vehicle, in normal use, to comply with the provisions of this Regulation.
    - 5.2.1.5. For anchorages which take up different positions to allow persons to enter the vehicle and to restrain the occupants, the specifications of this Regulation shall apply to the anchorages in the effective restraint position.

5.3. *Minimum number of belt anchorages to be provided*

- 5.3.1. For folding (tip-up) seats there is no requirement for anchorages. However, if the vehicle is fitted with anchorages for such a seat, these anchorages shall satisfy the provisions of this Regulation.
- 5.3.2. For front outboard seats intended for adults, there shall be two lower belt anchorages and one upper belt anchorage.
- 5.3.3. For rear outboard seats, there shall be two lower belt anchorages and one upper belt anchorage but when in the opinion of the technical service conducting approval tests no upper belt anchorages can be installed such as in some convertible cars or cars with a removable roof, two lower belt anchorages shall be acceptable.
- 5.3.4. For all other seats, two lower belt anchorages shall be acceptable.

5.4. *Location of belt anchorages (see annex 3, fig. 1)*

5.4.1. *General*

- 5.4.1.1. The belt anchorages for any one belt may be located either wholly in the vehicle structure or in the seat structure or any other part of the vehicle or dispersed between these locations.
- 5.4.1.2. Any one belt anchorage may be used for attaching the ends of two adjacent safety belts provided that the test requirements are met.
- 5.4.1.3. In the case of a bench seat provided with belt anchorages for two or more seating positions the lower belt anchorages shall all be either integral with the seat or in the body structure. A similar requirement shall also apply to upper belt anchorages.

5.4.2. *Location of the effective lower belt anchorages*

- 5.4.2.1. The angles  $\alpha_1$  and  $\alpha_2$  shall be within the range of 30° to 80° in all normal travelling positions of the seat. For optimum occupant protection, it is recommended that angles  $\alpha_1$  and  $\alpha_2$  are as close as possible to 60°. However, in the case of front seats, where there is no seat adjustment or where the belt anchorages are on the seat itself, the angles  $\alpha_1$  and  $\alpha_2$  shall be  $60^\circ \pm 10^\circ$ .
- 5.4.2.2. In the case of the rear seats, the angles  $\alpha_1$  and  $\alpha_2$  may be less than the minimum specified in paragraph 5.4.2.1, provided they are not less than 20°.
- 5.4.2.3. The distance between the two vertical planes parallel to the median longitudinal plane of the vehicle and each passing through a different one of the two effective lower belt anchorages  $B_1$  and  $B_2$  of the same seat belt shall not be less than 350 mm. The median longitudinal plane of the seat shall pass between points  $B_1$  and  $B_2$  and shall be at least 120 mm from these points.

5.4.3. *Location of the effective upper belt anchorages (see annex 3, fig. 2)*

- 5.4.3.1. In the case where a strap guide or similar device is used which affects the location of the effective upper belt anchorage, this location will be determined in a conventional way by considering the position of the anchorage when the longitudinal centre line of the strap passes through a point J of co-ordinates  $x = 60$  mm,  $y = 120$  mm and  $z = 530$  mm in the following system of co-ordinates:

Hz is the torso reference line,

Hy is a horizontal transverse line directed towards the side nearer to the anchorage,

Hx is a perpendicular to yHz in a forward direction.

- 5.4.3.2. If located to the rear of a plane perpendicular to the median longitudinal plane of the seat and passing through the reference line, the effective upper belt anchorage shall lie below the plane FN perpendicular to the median longitudinal plane of the seat and forming an angle of 65° to the reference line. In the case of rear seats this angle may be reduced to 60°. The plane FN is so positioned that it intersects the reference line at a point D such that DH equals  $315 \text{ mm} + 1.6 \cdot S$ .

If located on or forward of a plane perpendicular to the median longitudinal plane of the seat and passing through the reference line, the effective upper belt anchorage shall be below the plane  $F_1N_1$  perpendicular to the median longitudinal plane of the seat and forming an angle of  $65^\circ$  to the reference line. In the case of rear seats, this angle may be reduced to  $60^\circ$ . The plane  $F_1N_1$  is so positioned that it intersects the reference line at a point  $D'$  such that  $D'H$  equals  $315 \text{ mm} + 1.8 \cdot S$ .

- 5.4.3.3. If located to the rear of a plane perpendicular to the median longitudinal plane of the seat and passing through the reference line, the effective upper belt anchorage shall lie behind a plane  $FK$ , perpendicular to the median longitudinal plane of the seat, intersecting the reference line at an angle of  $120^\circ$  at a point  $B$  such that  $BH$  equals  $260 \text{ mm} + 1.2 \cdot S$ .

If located on or forward of a plane perpendicular to the median longitudinal plane of the seat and passing through the reference line, the effective upper belt anchorage shall lie behind a plane  $F_1K_1$  perpendicular to the median longitudinal plane of the seat, intersecting the reference line at an angle of  $120^\circ$  at a point  $B'$  such that  $B'H$  equals  $260 \text{ mm} + S$ .

- 5.4.3.4. The value of  $S$  shall not be less than 140 mm.
- 5.4.3.5. The effective upper belt anchorage shall be situated to the rear of a vertical plane perpendicular to the median longitudinal plane of the vehicle and passing through the  $H$  point as shown in annex 3.
- 5.4.3.6. The effective upper belt anchorage shall be situated above the horizontal plane passing through point  $C$ .
- 5.4.3.7. When the configuration of the vehicle does not allow the location of the effective upper belt anchorage above the plane  $C-Y$ , the effective upper belt anchorage may, by way of exception to the requirement of paragraph 5.4.3.6 and for a period of two years from the date of acceptance of the amendment of the Regulation, be placed in the area included between the horizontal plane  $CY$  and the plane  $CM$  perpendicular to the median longitudinal plane of the vehicle and forming a  $20$  degree angle with the plane  $CY$ .

In this case the seatback shall reach a height not less than the height of a horizontal plane through point  $C$  and a strap guide must be provided to prevent the strap from sliding off the shoulder. When tested in accordance with paragraph 6. the seatback shall be designed so as to support the strap above the point where the seatback intersects the plane  $C-M$ .

#### 5.5. *Strength of anchorages*

- 5.5.1. Each anchorage shall be capable of withstanding the tests prescribed in paragraphs 6.3 and 6.4. Permanent deformation, including rupture or breakage, of any anchorage or surrounding area shall not constitute failure if the required force is sustained for the specified time. During the test, the minimum spacings for the effective lower belt anchorages specified in paragraph 5.4.2.3 and the requirements of paragraphs 5.4.3.6 and 5.4.3.7 for effective upper belt anchorages shall be respected.
- 5.5.2. In the case of a two-door car the system enabling the occupants of the rear seats to leave the vehicle must still be releasable after application of the tractive force.

#### 5.6. *Dimensions of threaded anchorage holes*

- 5.6.1. An anchorage shall have a threaded hole of 7/16 inch (20 UNF 2B).
- 5.6.2. Where suitable safety belts are fitted and supplied with the vehicle by its manufacturer, their anchorages need not comply with the requirements of paragraph 5.6.1 on condition that they comply with all the other requirements of this Regulation.

## 6. TESTS

### 6.1. *General*

- 6.1.1. Subject to application of the provisions of paragraph 6.2, and at the request of the manufacturer,
  - 6.1.1.1. The tests may be carried out either on a vehicle structure or on a completely finished vehicle;
  - 6.1.1.2. Windows and doors may be fitted or not and closed or not;
  - 6.1.1.3. Any fitting normally provided and likely to contribute to the rigidity of the vehicle structure may be fitted.
- 6.1.2. The seats shall be fitted and shall be placed in the position for driving or use chosen by the technical service conducting approval tests to give the most adverse conditions with respect to strength. The position of the seats shall be stated in the report. If the angle between the seat back and the cushion is adjustable it shall be set as specified in annex 4, paragraph 2.2.

### 6.2. *Securing of the vehicle*

- 6.2.1. The method used to secure the vehicle during the test shall not be such as to strengthen the anchorages or the anchorage areas or to lessen the normal deformation of the structure.
- 6.2.2. A securing device shall be regarded as satisfactory if it produces no effect on an area extending over the whole width of the structure and if the vehicle or the structure is blocked or fixed in front at a distance of not less than 500 mm from the anchorage to be tested and is held or fixed at the rear not less than 300 mm from that anchorage.
- 6.2.3. It is recommended that the structure should rest on supports arranged approximately in line with the axes of the wheels or, if that is not possible, in line with the points of attachment of the suspension.
- 6.2.4. If a test method other than that prescribed in paragraphs 6.3.1.-6.3.8 of this Regulation is used, evidence must be furnished that it is equivalent.

### 6.3. *General test specifications*

- 6.3.1. All the belt anchorages of the same group of seats shall be tested simultaneously.
- 6.3.2. The tractive force shall be applied in a forward direction at an angle of  $10^{\circ} \pm 5^{\circ}$  above the horizontal in a plane parallel to the median longitudinal plane of the vehicle.
- 6.3.3. Full application of the load shall be achieved as rapidly as possible. The belt anchorages must withstand the specified load for not less than 0.2 second.
- 6.3.4. Traction devices to be used in the tests described in paragraph 6.4 below are shown in annex 5.
- 6.3.5. The belt anchorages for seats for which upper belt anchorages are provided shall be tested under the following conditions:
  - 6.3.5.1. *Front Outboard Seats:*
    - The belt anchorages shall be submitted to the test prescribed in paragraph 6.4.1 in which the loads are transmitted to them by means of a device reproducing the geometry of a three-point belt equipped with a retractor having a pulley or strap guide at the upper belt anchorage.
    - 6.3.5.1.1. In the case where the retractor is not attached to the required outboard lower belt anchorage or in the case where the retractor is attached to the upper belt anchorage, the lower belt anchorages shall also be submitted to the test prescribed in paragraph 6.4.3.
    - 6.3.5.1.2. In the above case the tests prescribed in paragraphs 6.4.1 and 6.4.3 can be performed on two different structures if the manufacturer so requests.

- 6.3.5.2. Rear outboard seats and all centre seats:  
The belt anchorages shall be subjected to the test prescribed in paragraph 6.4.2 in which the loads are transmitted to them by means of a device reproducing the geometry of a three point safety belt without a retractor, and to the test prescribed in paragraph 6.4.3 in which the loads are transmitted to the two lower belt anchorages by means of a device reproducing the geometry of a lap belt. The two tests can be performed on two different structures if the manufacturer so requests.
- 6.3.5.3. Notwithstanding the requirements of paragraphs 6.3.5.1 and 6.3.5.2, when a manufacturer supplies his vehicle with safety belts, installed with incorporated retractor, the corresponding belt anchorages shall be submitted to the test in which the loads are transmitted to them by means of a device reproducing the geometry of the safety belt(s) for which these anchorages are to be approved.
- 6.3.6. If no upper belt anchorages are provided for the rear outboard seats and the centre seats, the lower belt anchorages shall be submitted to the test prescribed in paragraph 6.4.3 in which the loads are transmitted to these anchorages by means of a device reproducing the geometry of a lap belt.
- 6.3.7. If the vehicle is designed to accept other devices which do not enable the straps to be directly attached to belt anchorages without intervening sheaves, etc., or which require belt anchorages supplementary to those mentioned in paragraph 5.3, the safety belt or an arrangement of wires, sheaves, etc., representing the equipment of the safety belt, shall be attached by such a device to the belt anchorages in the vehicle and the belt anchorages shall be subjected to the tests prescribed in paragraph 6.4. as appropriate.
- 6.3.8. A test method other than those prescribed in paragraph 6.3 may be used, but evidence must be furnished that it is equivalent.
- 6.4. *Particular test specifications*
- 6.4.1. *Test in configuration of a three point belt incorporating a retractor having a pulley or strap guide at the upper belt anchorage*
- 6.4.1.1. A special pulley or guide for the wire or strap appropriate to transmit the load from the traction device, or the pulley or strap guide supplied by the manufacturer shall be fitted to the upper belt anchorage.
- 6.4.1.2. A test load of  $1350 \text{ daN} \pm 20 \text{ daN}$  shall be applied to a traction device (see annex 5, figure 2) attached to the belt anchorages of the same belt, by means of a device reproducing the geometry of the upper torso strap of such a safety belt.
- 6.4.1.3. At the same time a tractive force of  $1350 \text{ daN} \pm 20 \text{ daN}$  shall be applied to a traction device (see annex 5, figure 1) attached to the two lower belt anchorages.
- 6.4.2. *Test in configuration of a three point belt without retractor or with a retractor at the upper belt anchorage*
- 6.4.2.1. A test load of  $1350 \text{ daN} \pm 20 \text{ daN}$  shall be applied to a traction device (see annex 5, figure 2) attached to the upper belt anchorage and to the opposite lower belt anchorage of the same belt, using, if supplied by the manufacturer, a retractor fixed at the upper belt anchorage.
- 6.4.2.2. At the same time a tractive force of  $1350 \text{ daN} \pm 20 \text{ daN}$  shall be applied to a traction device (see annex 5, figure 1) attached to the lower belt anchorages.
- 6.4.3. *Test in configuration of a lap belt*  
A test load of  $2225 \text{ daN} \pm 20 \text{ daN}$  shall be applied to a traction device (see annex 5, figure 1) attached to the two lower belt anchorages.
- 6.4.4. *Test for belt anchorages located wholly within the seat structure or dispersed between the vehicle structure and the seat structure*
- 6.4.4.1. The test specified in paragraphs 6.4.1, 6.4.2 and 6.4.3 above shall be performed, as appropriate, at the same time superimposing for each seat and for each group of seats a force as stated below.



- 6.4.4.2. The loads indicated in paragraphs 6.4.1, 6.4.2 and 6.4.3 shall be supplemented by a force equal to 20 times the weight of the complete seat applied horizontally and longitudinally through the centre of gravity of the seat.
7. INSPECTION AFTER TESTING  
After testing any damage to the anchorages and structures supporting load during tests shall be noted.
8. MODIFICATIONS OF THE VEHICLE TYPE
- 8.1. Every modification of the vehicle type shall be notified to the administrative department which approved the vehicle type. The department may then either:
- 8.1.1. Consider that the modifications made are unlikely to have an appreciable adverse effect and that in any case the vehicle still meets the requirements; or
- 8.1.2. Require a further test report from the technical service responsible for conducting the tests.
- 8.2. Notice of confirmation of approval or refusal of approval, specifying the modifications, shall be communicated by the procedure specified in paragraph 4.3 above to the Parties to the Agreement which apply this Regulation.
9. CONFORMITY OF PRODUCTION
- 9.1. Every vehicle bearing an approval mark as prescribed under this Regulation shall conform to the vehicle type approved with regard to details affecting the characteristics of the anchorages.
- 9.2. In order to verify conformity as prescribed in paragraph 9.1 above, a sufficient number of serially-produced vehicles bearing the approval mark required by this Regulation shall be subjected to random checks.
- 9.3. As a general rule the checks as aforesaid shall be confined to the taking of measurements. However, if necessary, the vehicles shall be subjected to some of the tests described in paragraph 6. above, selected by the technical service conducting approval tests.
10. PENALTIES FOR NON-CONFORMITY OF PRODUCTION
- 10.1. The approval granted in respect of a vehicle type pursuant to this Regulation may be withdrawn if the requirement laid down in paragraph 9.1 above is not complied with or if its anchorages fail to pass the checks prescribed in paragraph 9 above.
- 10.2. If a Party to the Agreement which applies this Regulation withdraws an approval it has previously granted, it shall forthwith notify the other Contracting Parties applying this Regulation thereof by means of a copy of the approval form bearing at the end, in large letters, the signed and dated annotation "APPROVAL WITHDRAWN".
11. OPERATING INSTRUCTIONS  
The national authorities may require the manufacturers of vehicles registered by them to state clearly in the instructions for operating the vehicle
- 11.1. Where the anchorages are; and
- 11.2. For what types of belts the anchorages are intended (see annex 1, paragraph 5).
12. NAMES AND ADDRESSES OF TECHNICAL SERVICES CONDUCTING APPROVAL TESTS, AND OF ADMINISTRATIVE DEPARTMENTS  
The Parties to the Agreement applying this Regulation shall communicate to the Secretariat of the United Nations the names and addresses of the technical services conducting approval tests and of the administrative departments which grant approval and to which forms certifying approval or refusal or withdrawal of approval, issued in other countries, are to be sent.

ANNEX 1

(Maximum format: A4 (210 × 297 mm))



NAME OF ADMINISTRATION
---------------------------

*Communication concerning the approval (or refusal or withdrawal of approval) of a vehicle type with regard to safety-belt anchorages, pursuant to Regulation No. 14*

- Approval No. ....
1. Trade name or mark of the power-driven vehicle .....
  2. Type of vehicle .....
  3. Manufacturer's name and address .....
  4. If applicable, name and address of manufacturer's representative .....
  5. Designation of the type of belts and retractors authorized for fitting to the anchorages with which the vehicle is equipped:

		<i>Anchorage on*</i>	
		<i>Vehicle structure</i>	<i>Seat structure</i>
<i>Front</i>			
Right-hand seat	{ lower anchorages	{ outboard	{ inboard
	{ upper anchorage	{ inboard	
Middle seat	{ lower anchorages	{ right	{ left
	{ upper anchorage	{ left	
Left-hand seat	{ lower anchorages	{ outboard	{ inboard
	{ upper anchorage	{ inboard	
<i>Rear</i>			
Right-hand seat	{ lower anchorages	{ outboard	{ inboard
	{ upper anchorage	{ inboard	
Middle seat	{ lower anchorages	{ right	{ left
	{ upper anchorage	{ left	
Left-hand seat	{ lower anchorages	{ outboard	{ inboard
	{ upper anchorage	{ inboard	

*Remarks:* .....

\* Insert in the actual position the following letter(s);  
 "A" for a three-point belt including the case where a retractor is attached directly to the anchorage without a pulley or strap guide at the upper anchorage,  
 "B" for a lap belt,  
 "S" for special-type belts; in this case state the nature of the types under "Remarks",  
 "Ar", "Br" or "Sr" for a belt incorporating retractors using a pulley or strap guide,  
 "Ae", "Be" or "Se" for a belt with an energy absorption device,  
 "Are" or "Sre" for a belt fitted with a retractor using a pulley or a strap guide and an energy absorption device on at least one anchorage.

6. \*\* Description of seats . . . . .
7. \*\* Description of the adjustment, displacement and locking systems either of the seat or of its parts . . . . .
8. \*\* Description of seat anchorage . . . . .
9. Description of particular type of safety belt required in the case of an anchorage located in the seat back or incorporating an energy-dissipating device . . . . .
10. Vehicle submitted for approval on . . . . .
11. Technical service conducting approval tests . . . . .
12. Date of report issued by that service . . . . .
13. Number of report issued by that service . . . . .
14. Approval granted/refused\*\*\*
15. Position of approval mark on vehicle . . . . .
16. Place . . . . .
17. Date . . . . .
18. Signature . . . . .
19. The following documents, bearing the approval number shown above, are annexed to this communication:
  - . . . Drawings, diagrams and plans of the belt anchorages and of the vehicle structure;
  - . . . Photographs of the belt anchorages and of the vehicle structure;
  - . . . Drawings, diagrams and plans of the seats, of their anchorage on the vehicle, of the adjustment and displacement systems of the seats and of their parts and of their locking devices;\*\*
  - . . . Photographs of the seats, of their anchorage, of the adjustment and displacement systems of the seats and of their parts, and of their locking devices.\*\*

ANNEX 2

ARRANGEMENTS OF THE APPROVAL MARK

*Model A*

(See paragraph 4.4 of this Regulation)

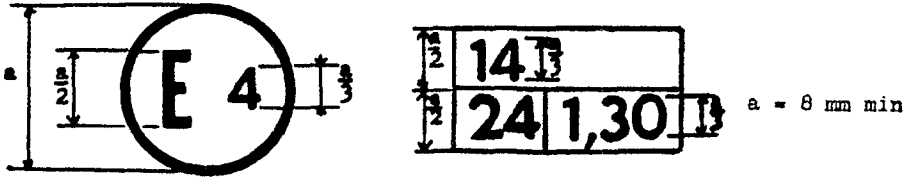


The above approval mark affixed to a vehicle shows that the vehicle type concerned has, with regard to safety-belt anchorages on passenger cars, been approved in the Netherlands (E 4) pursuant to Regulation No. 14.

\*\* Only if the anchorage is affixed on the seat or if the seat supports the belt strap.  
 \*\*\* Strike out what does not apply.

Model B

(See paragraph 4.5 of this Regulation)

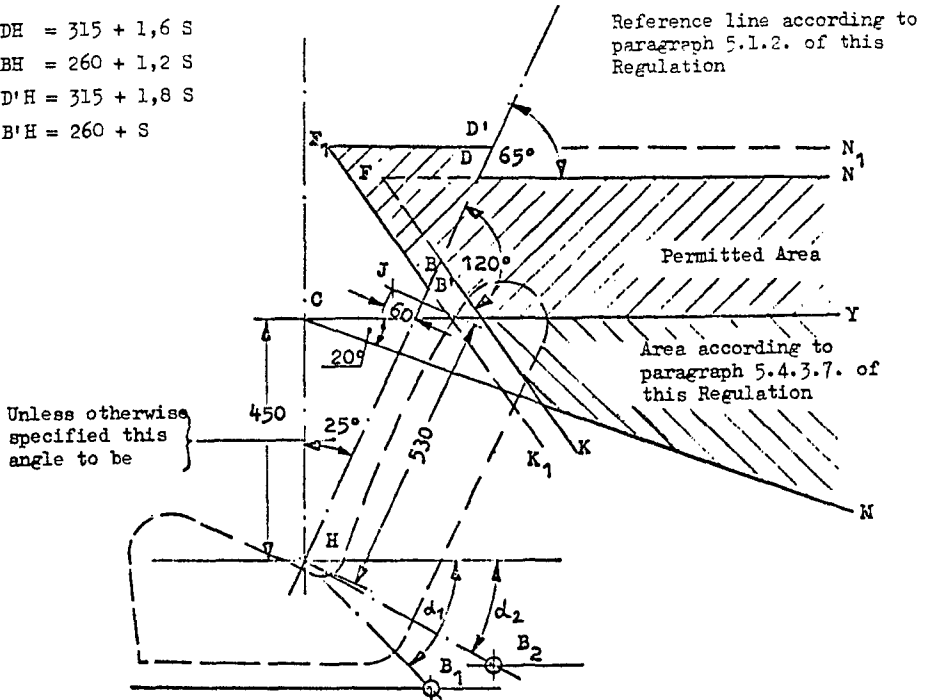


The above approval mark affixed to a vehicle shows that the vehicle type concerned has been approved in the Netherlands (E 4) pursuant to Regulations Nos. 14 and 24.\* (In the case of the latter Regulation the corrected absorption coefficient is 1.3 m<sup>-1</sup>.)

ANNEX 3

Figure 1. AREAS OF LOCATIONS OF EFFECTIVE BELT ANCHORAGES

- DE = 315 + 1,6 S
- BE = 260 + 1,2 S
- D'H = 315 + 1,8 S
- B'H = 260 + S



\* The second number is given merely as an example.

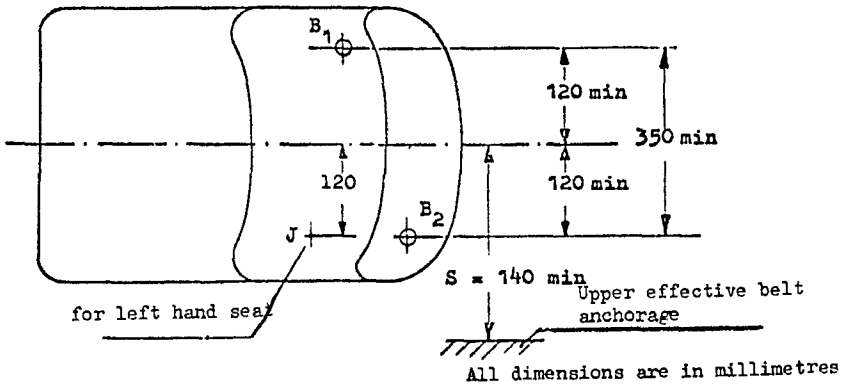
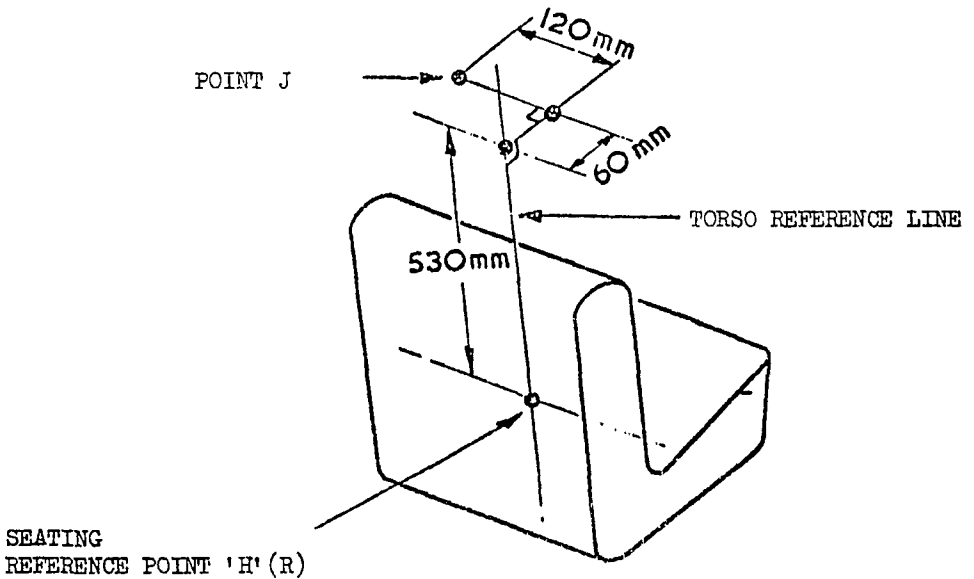


Figure 2. LOCATION OF UPPER TORSO REFERENCE POINT  
(according to paragraph 5.4.3.1 of this Regulation)



ANNEX 4

PROCEDURE FOR DETERMINING THE "H" POINT AND VERIFYING THE RELATIVE POSITIONS OF THE "H" AND "R" POINTS

1. DEFINITIONS
  - 1.1. The "H" point, which indicates the position of a seated occupant in the passenger compartment, is the trace, in a longitudinal plane, of the theoretical axis of rotation between the legs and the torso of a human body represented by the manikin described in paragraph 3 below.

- 1.2. The "R" point or "seating reference point" is the reference point specified by the manufacturer which
  - 1.2.1. Has co-ordinates determined in relation to the vehicle structure;
  - 1.2.2. Corresponds to the theoretical position of the point of torso/legs rotation ("H" point) for the lowest and most rearward normal driving position or position of use given to each seat provided by the vehicle manufacturer.
2. DETERMINATION OF "H" POINTS
  - 2.1. An "H" point shall be determined for each seat provided by the manufacturer of the vehicle. If the seats in the same row can be regarded as similar (bench seat, identical seats, etc.), only one "H" point shall be determined for each row of seats, the manikin described in paragraph 3 below being seated in a place regarded as representative for the row. This place shall be:
    - 2.1.1. In the case of the front row, the driver's seat;
    - 2.1.2. In the case of the rear row or rows, an outer seat.
  - 2.2. When an "H" point is being determined, the seat considered shall be placed in the lowest and most rearward normal driving position or position of use provided for it by the manufacturer. The seat back shall if its inclination is adjustable be locked as specified by the manufacturer or in the absence of any specification to an actual seat-back angle of as nearly as possible 25° from the vertical.
3. DESCRIPTION OF THE MANIKIN
  - 3.1. A three-dimensional manikin of a weight and contour corresponding to those of an adult male of average height shall be used. Such a manikin is depicted in figures 1 and 2 of the appendix to this annex.
  - 3.2. The manikin shall comprise:
    - 3.2.1. Two components, one simulating the back and the other the seat of the body, pivoting on an axis representing the axis of rotation between the torso and the thigh. The trace of this axis on the side of the manikin is the manikin's "H" point;
    - 3.2.2. Two components simulating the legs and pivotally attached to the component simulating the seat; and
    - 3.2.3. Two components simulating the feet and connected to the legs by pivotal joints simulating ankles.
    - 3.2.4. In addition, the component simulating the seat of the body shall be provided with a level enabling its transverse orientation to be verified.
  - 3.3. Body-segment weights shall be attached at appropriate points corresponding to the relevant centres of gravity, so as to bring the total weight of the manikin up to about 75.6 kg. Details of the various weights are given in the table in figure 2 of the appendix to this annex.
4. SETTING UP THE MANIKIN

The three-dimensional manikin shall be set up in the following manner:

  - 4.1. The vehicle shall be placed on a horizontal plane and the seats adjusted as prescribed in paragraph 2.2 above;
  - 4.2. The seat to be tested shall be covered with a piece of cloth to facilitate correct setting up of the manikin;
  - 4.3. The manikin shall be placed on the seat concerned, its pivotal axes being perpendicular to the longitudinal plane of symmetry of the vehicle;
  - 4.4. The feet of the manikin shall be placed as follows:
    - 4.4.1. In the front seats, in such a way that the axis verifying the transverse inclination of the seat of the manikin is brought to the horizontal;

- 4.4.2. In the rear seats, so far as possible in such a way as to be in contact with the front seats. If the feet then rest on parts of the floor which are at different levels, the foot which first comes into contact with the front seat shall serve as a reference point and the other foot shall be so arranged that the axis enabling the transverse inclination of the seat of the manikin to be verified is brought to the horizontal;
  - 4.4.3. If the "H" point is being determined for a centre seat, the feet shall be placed one on each side of the tunnel;
  - 4.5. The weights shall be placed on the thighs, the axis verifying the transverse inclination of the seat of the manikin shall be brought to the horizontal, and the weights shall be placed on the component representing the seat of the manikin;
  - 4.6. The manikin shall be moved away from the seat back by means of the knee-pivot bar and the back of the manikin shall be pivoted forwards. The manikin shall be repositioned on the seat of the vehicle by being slid backwards on its seat until resistance is encountered, the back of the manikin then being replaced against the seat back;
  - 4.7. A horizontal load of approximately  $10 \pm 1$  daN shall be applied to the manikin twice. The direction and point of application of the load are shown by a black arrow in figure 2 of the appendix;
  - 4.8. The weights shall be installed on the right and left sides, and the torso weights shall then be placed in position. The transverse axis of the manikin shall be kept horizontal;
  - 4.9. The transverse axis of the manikin being kept horizontal, the back of the manikin shall be pivoted forwards until the torso weights are above the "H" point, so as to eliminate any friction with the seat back;
  - 4.10. The back of the manikin shall be gently moved rearwards so as to complete the setting-up operation. The transverse axis of the manikin shall be horizontal. If it is not, the procedure described above shall be repeated.
5. RESULTS
    - 5.1. When the manikin has been set up as described in paragraph 4 above, the "H" point of the vehicle seat considered is constituted by the "H" point of the manikin's torso reference line.
    - 5.2. The co-ordinates of the "H" point in relation to three mutually perpendicular planes shall be measured for comparison with the data supplied by the vehicle manufacturer.
  6. VERIFYING THE RELATIVE POSITIONS OF THE "R" AND "H" POINTS
    - 6.1. The results of the measurements carried out in conformity with paragraph 5.2 for the "H" point shall be compared with the co-ordinates of the "R" point as supplied by the vehicle manufacturer.
    - 6.2. The relative positions of the "R" point and the "H" point shall be considered to be satisfactory for the seat in question if the "H" point, as defined by its co-ordinates, lies within a longitudinal rectangle whose horizontal and vertical sides are 30 mm and 20 mm long respectively and whose diagonals intersect at the "R" point.
      - 6.2.1. If these conditions are met, the "R" point shall be used for the test and, if necessary, the manikin shall be so adjusted that the "H" point coincides with the "R" point.
    - 6.3. If the "H" point does not satisfy the requirements of paragraph 6.2 above, the "H" point shall be determined twice more (three times in all). If the results of two of these three operations satisfy the requirements the results of the test shall be considered to be satisfactory.
    - 6.4. If at least two of the three test results do not satisfy the requirements of paragraph 6.2, the result of the test shall be considered to be not satisfactory.
    - 6.5. If the situation described in paragraph 6.4 above arises, or if verification cannot be effected because the manufacturer has failed to supply information regarding the position of the "R" point the average of the results of the three determinations may be used and be regarded as applicable in all cases where the "R" point is referred to in this Regulation.

6.6. For verifying the relative positions of the "R" point and the "H" point in a serially-produced vehicle the rectangle referred to in paragraph 6.2 above shall be replaced by a square of 50 mm side.

*Annex 4 Appendix*

COMPONENTS OF THREE DIMENSIONAL MANIKIN

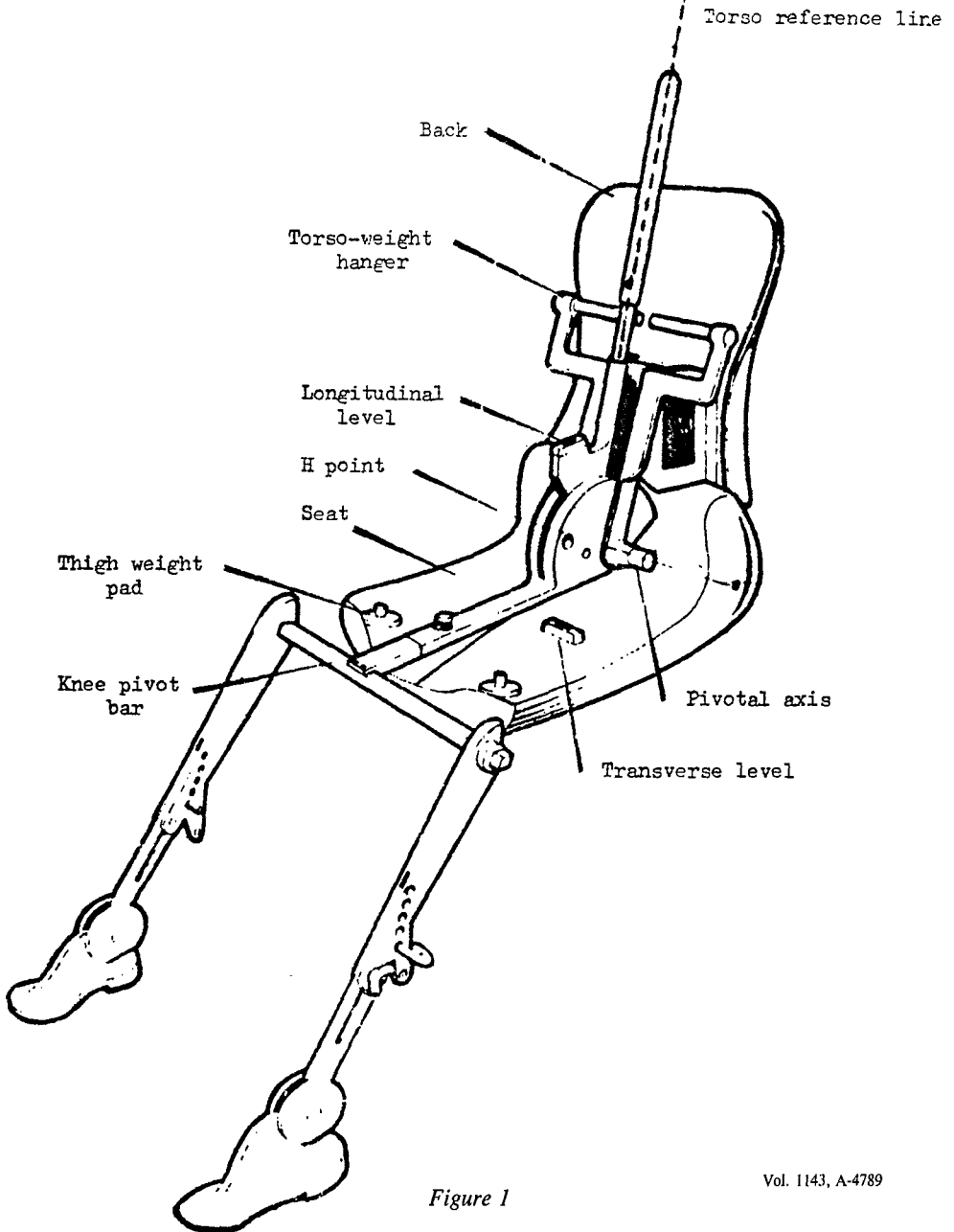


Figure 1



DIMENSIONS AND WEIGHT OF MANIKIN

<u>Mass of manikin</u>	<u>kg</u>	39.47 cm
Components simulating back and seat of body	16.6	
Torso weights	31.2	
Seat weights	7.8	
Thigh weights	6.8	
Leg weights	13.2	
<u>Total</u>	<u>75.6</u>	

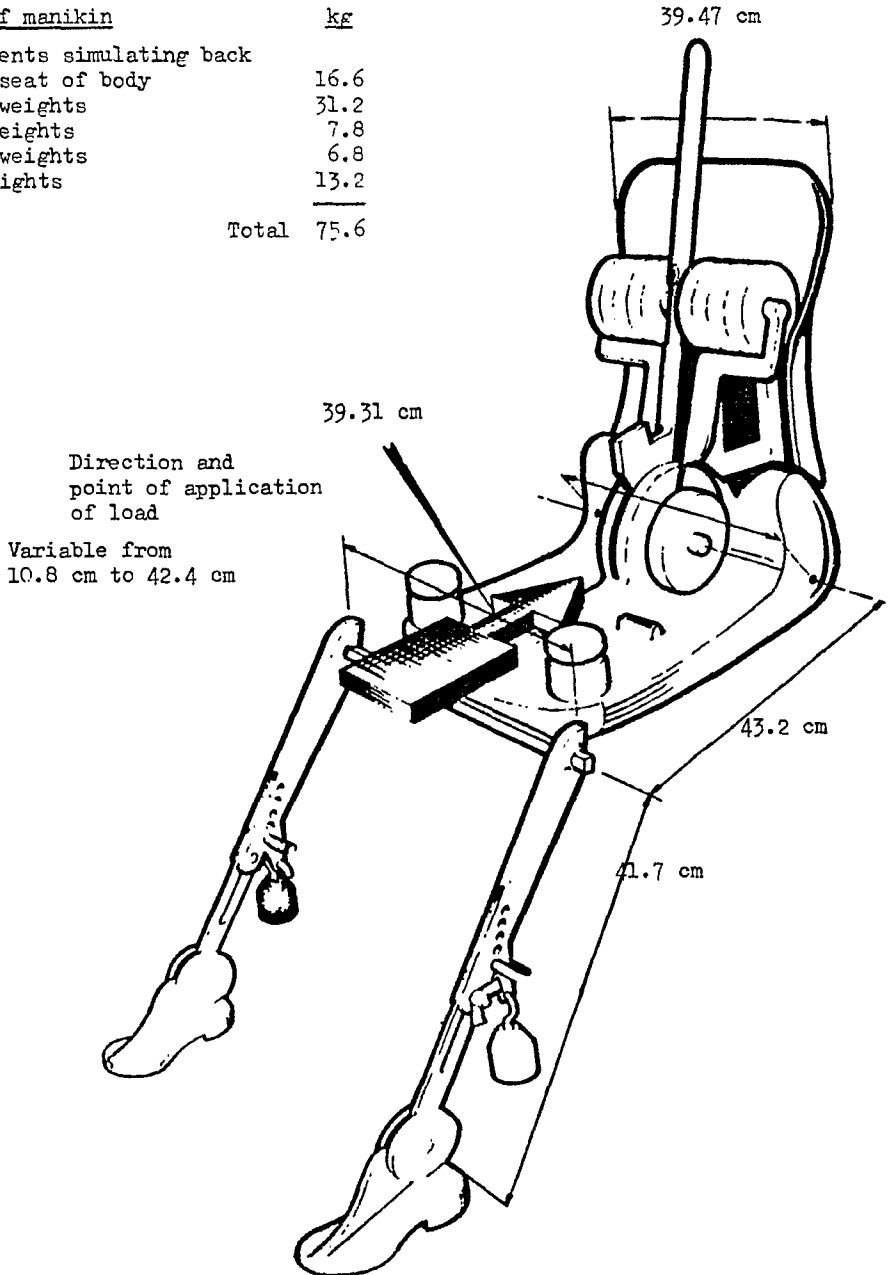
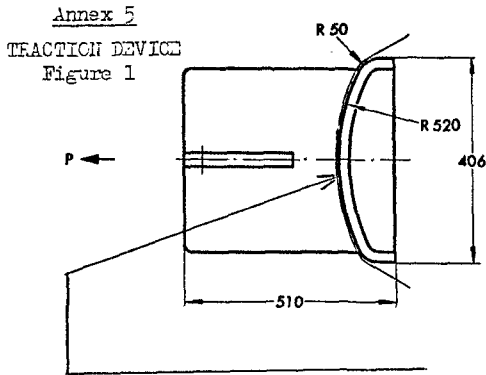


Figure 2

ANNEX 5

TRACTION DEVICE  
Figure 1



Cloth-covered foam, thickness 25

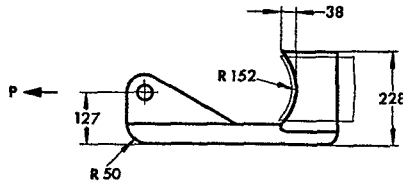
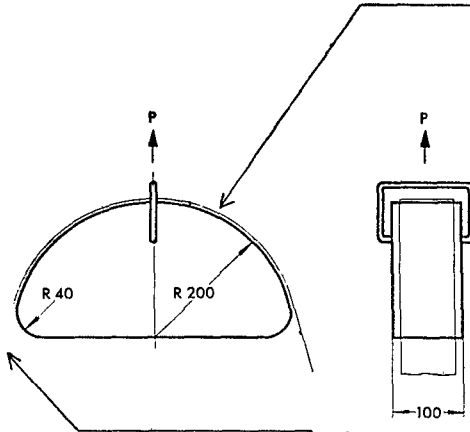


Figure 2

Cloth-covered foam, thickness 25



Strap connecting block to anchorage points  
(dimensions in mm)