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Contents

I *Acts whose publication is obligatory*

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II *Acts whose publication is not obligatory*

Council

78/764/EEC:

★ Council Directive of 25 July 1978 on the approximation of the laws of the Member States relating to the driver's seat on wheeled agricultural or forestry tractors	1
Annex I: Definitions	4
Annex II: Construction and testing requirements — EEC component type-approval and marking requirements	7
Annex III: Model EEC component type-approval certificate	37
Annex IV: Driver's seat installation requirements for EEC type-approval of a tractor	38
Annex V: Annex to the EEC type-approval certificate for a tractor with regard to the driver's seat	39

II

(Acts whose publication is not obligatory)

COUNCIL

COUNCIL DIRECTIVE

of 25 July 1978

on the approximation of the laws of the Member States relating to the driver's seat on wheeled agricultural or forestry tractors

(78/764/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 100 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament ⁽¹⁾,

Having regard to the opinion of the Economic and Social Committee ⁽²⁾,

Whereas the technical requirements which tractors must satisfy pursuant to national laws relate *inter alia* to the driver's seat;

Whereas the requirements differ from one Member State to another; whereas it is therefore necessary that all Member States adopt the same requirements either in addition to or in place of their existing rules, in order, in particular, to allow the EEC type-approval procedure which was the subject of Council Directive 74/150/EEC of 4 March 1974 on the approximation of the laws of the Member States relating to the type-approval of wheeled agricultural or forestry tractors ⁽³⁾ to be introduced in respect of each type of tractor;

Whereas the rules relating to driver's seats cover not only the requirements for their installation on tractors but also the construction of the seats; whereas a harmonized component type-approval procedure makes it possible for each Member State to check compliance with the common construction and testing requirements and to inform the other Member States of its findings by sending a copy of the component type-approval certificate completed for each type of driver's seat; whereas the placing of an EEC component type-approval mark on all driver's seats manufactured in conformity with the approved type obviates any need for technical checks on those driver's seats in the other Member States,

HAS ADOPTED THIS DIRECTIVE:

Article 1

1. Each Member State shall grant EEC component type-approval for any type of driver's seat which satisfies the construction and testing requirements laid down in Annexes I and II.

2. The Member State which has granted EEC component type-approval shall take the measures required in order to verify, in so far as is necessary and if need be in cooperation with the competent authorities in the

⁽¹⁾ OJ No C 299, 12. 12. 1977, p. 61.

⁽²⁾ OJ No C 84, 8. 4. 1978, p. 11.

⁽³⁾ OJ No L 84, 28. 3. 1974, p. 10.

other Member States, that production models conform to the approved type. Such verification shall be limited to spot checks.

Article 2

Member States shall, for each type of driver's seat which they approve pursuant to Article 1, issue to the manufacturer or to his authorized representative, an EEC component type-approval mark conforming to the model shown in 3.5 of Annex II.

Member States shall take all appropriate measures to prevent the use of marks liable to create confusion between driver's seats which have been granted component type-approval pursuant to Article 1 and other devices.

Article 3

1. No Member State may prohibit the placing on the market of driver's seats on grounds relating to their construction if they bear the EEC component type-approval mark.

2. Nevertheless, a Member State may prohibit the placing on the market of driver's seats bearing the EEC component type-approval mark which consistently fail to conform to the approved type.

That State shall forthwith inform the other Member States and the Commission of the measures taken, specifying the reasons for its decision.

Article 4

The competent authorities of each Member State shall within one month send to the competent authorities of the other Member States a copy of the component type-approval certificates, an example of which is given in Annex III, completed for each type of driver's seat which they approve or refuse to approve.

Article 5

1. If the Member State which has granted EEC component type-approval finds that a number of driver's seats bearing the same EEC component type-approval mark do not conform to the type which it has approved, it shall take the necessary measures to ensure that production models conform to the approved type. The competent authorities of that State shall advise those of the other Member States of the measures taken, which

may, if necessary, where there is serious and repeated failure to conform, extend to withdrawal of EEC component type-approval. The said authorities shall take the same measures if they are informed by the competent authorities of another Member State of such failure to conform.

2. The competent authorities of the Member States shall inform each other within one month of any withdrawal of EEC component type-approval, and of the reasons for such a measure.

Article 6

Any decision taken pursuant to the provisions adopted in implementation of this Directive to refuse or withdraw EEC component type-approval for a driver's seat or to prohibit its placing on the market or use, shall set out in detail the reasons on which it is based. Such decisions shall be notified to the party concerned, who shall at the same time be informed of the remedies available to him under the laws in force in the Member States and of the time limits allowed for the exercise of such remedies.

Article 7

No Member State may refuse to grant EEC type-approval or national type-approval for a tractor on grounds relating to its driver's seat if this bears the EEC component type-approval mark and is fitted in accordance with the requirements laid down in Annex IV.

Article 8

No Member State may refuse or prohibit the sale, registration, entry into service or use of any tractor on grounds relating to the driver's seat if this bears the EEC component type-approval mark and is fitted in accordance with the requirements set out in Annex IV.

Article 9

1. For the purpose of this Directive, 'agricultural or forestry tractor' means any motor vehicle, fitted with wheels or endless tracks, having at least two axles, the main function of which lies in its tractive power and which is specially designed to tow, push, carry or power certain tools, machinery or trailers intended for agricultural or forestry use. It may be equipped to carry a load and passengers.

2. This Directive shall apply only to tractors defined in paragraph 1 which are fitted with pneumatic tyres and which have two axles and a maximum design speed of between 6 and 25 km/h.

Article 10

Any amendments necessary to adjust the requirements of the Annexes to this Directive to take account of technical progress shall be adopted in accordance with the procedure laid down in Article 13 of Directive 74/150/EEC.

Article 11

1. Member States shall bring into force the provisions necessary in order to comply with this Directive within 18 months of its notification and shall forthwith inform the Commission thereof.

2. Member States shall ensure that the texts of the main provisions of national law which they adopt in the

field covered by this Directive are communicated to the Commission.

Article 12

This Directive is addressed to the Member States.

Done at Brussels, 25 July 1978.

For the Council

The President

K. von DOHNANYI

ANNEX I

DEFINITIONS

1. Driver's seat

'Driver's seat' means that seat capable of accommodating one person only, provided for the use of the driver when driving the tractor.

2. Seat surface

'Seat surface' means the almost horizontal area of the seat which supports the driver when seated.

3. Backrest

'Backrest' means the almost vertical area of the seat supporting the driver's back when seated.

4. Lateral seat supports

'Lateral seat supports' means the devices or forms of the seat surface which prevent the driver from sliding sideways.

4.1. Seat armrests

'Seat armrests' means the devices on either side of the seat which support the driver's arms when he is seated.

5. Seat reference point (S)

'Seat reference point (S)' means the point of intersection in the median longitudinal plane of the seat between the tangential plane at the base of the padded backrest and a horizontal plane. This horizontal plane intersects the lower surface of the seat 150 mm in front of the seat reference point (S) (see Appendix 1 to Annex II).

6. Depth of the seat surface

'Depth of the seat surface' means the horizontal distance between the seat reference point (S) and the front edge of the seat surface.

7. Width of the seat surface

'Width of the seat surface' means the horizontal distance between the outside edges of the seat surface measured in a plane perpendicular to the median plane of the seat.

8. Load adjustment range

'Load adjustment range' means the range between the two loads corresponding to the mean positions in the suspension system curves plotted for the heaviest and lightest driver.

9. Suspension travel

'Suspension travel' means the distance from the highest to the lowest position in the suspension system.

10. Vibration

'Vibration' means the vertical movement up and down of the driver's seat.

11. Vibration acceleration (a)

'Vibration acceleration (a)' means the second differential of the vibration displacement with respect to time.

12. Rms value of the acceleration (a_{eff})

'Rms value of the acceleration (a_{eff})' means the square root of the mean square of the accelerations.

13. Spectral power density ($\emptyset$)

'Spectral power density ($\emptyset$)' means the square of the root mean square of the accelerations (a_{eff}) measured with tertiary filters, divided by the band-width of those filters.

14. Weighted vibration acceleration (a_w)

'Weighted vibration acceleration (a_w)' means the weighted vibration acceleration determined with the help of a weighting filter in accordance with 2.5.3.3.5.2 of Annex II.

15. Vibration ratio

'Vibration ratio' means the ratio of the weighted vibration acceleration measured on the driver's seat to that measured at the seat attachment in accordance with 2.5.3.3.2 of Annex II.

16. Vibration class

'Vibration class' means the class or group of tractors which show the same vibration characteristics.

17. Category A tractor

'Category A tractor' means a tractor whose characteristics enable it to be included in a given vibration class because of similar constructional features.

17.1. The characteristics of these tractors are as follows:

Number of axles: two.

Load distribution:

- front axle: 30 to 45 % of unladen weight of the tractor,
- rear axle: 70 to 55 % of unladen weight of the tractor.

Tyres: front smaller than rear (ratio of tyre radii $\leq 4 : 5$).

Track width: smallest adjustable track width greater than 1 150 mm.

Suspension: rear axle unsprung.

Horizontal position of seat: between rear axle and centre of gravity of tractor.

17.2. Category A tractors are subdivided into two classes:

Class I: 1 400 to 3 600 kg unladen mass.

Class II: more than 3 600 to 5 000 kg unladen mass.

18. Reference tractor

'Reference tractor' means a tractor whose vibration behaviour is specific for establishing the set values for the test stand testing of a seat for a given vibration class of tractors.

18.1. The spectral power density of the vertical acceleration at the point of the seat attachment of the reference tractor must satisfy the conditions in Appendices 9 and 10 to Annex II.**18.2. The reference tractor should — provided the requirements of 18.1 are complied with — meet the requirements set out in the following table:**

	Class I	Class II	Tolerances ⁽¹⁾
Unladen mass in kg	3 040	4 750	± 5 %
— front axle in kg	1 300	1 830	± 5 %
— rear axle in kg	1 740	2 920	± 5 %
Front tyres	7.50-18	12.4/11-28	
Rear tyres	16.9/14-34	16.9/14-38	
Front tyre pressure in bar ⁽²⁾	2.0	1.5	+ 0.1 bar
Rear tyre pressure in bar ⁽²⁾	1.1	1.3	+ 0.1 bar
Wheelbase in mm	2 125	2 590	± 10 %

⁽¹⁾ These tolerances may only be exceeded when it is necessary to meet the requirement specified in 18.1.

⁽²⁾ These values are applicable to diagonal-ply tyres; if radial-ply tyres are used, the pressure must be increased by 15 %.

19. Category B tractor

'Category B tractor' means a tractor whose characteristics are such that it cannot be included in a class in category A.

20. Seats of the same type

'Seats of the same type' means seats which do not differ in any essential respects; the only aspects in which the seats may differ being as follows:

- 20.1. dimensions;
- 20.2. position and inclination of the backrest;
- 20.3. inclination of the seat surface;
- 20.4. longitudinal and vertical adjustment of the seat.

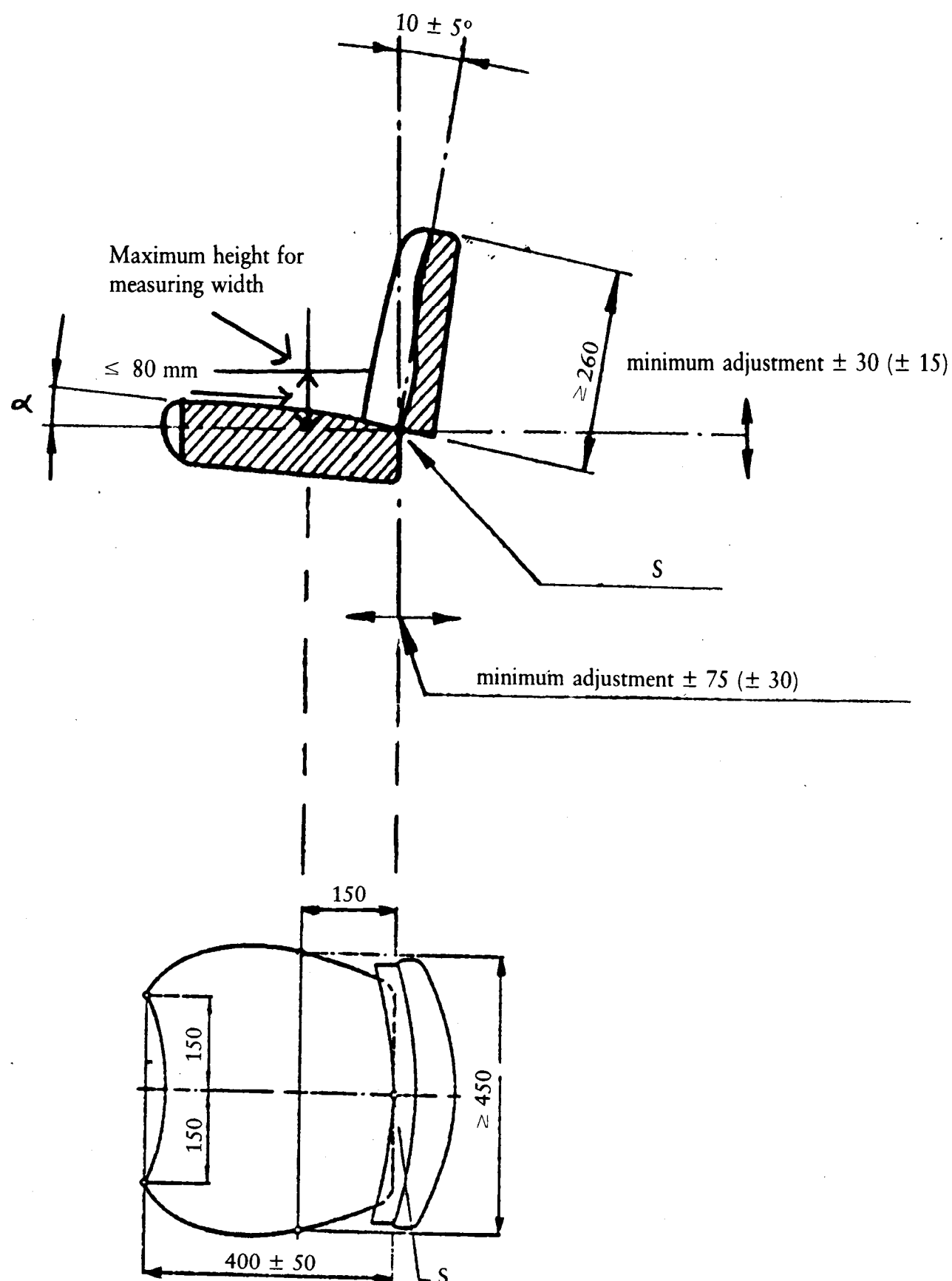
ANNEX II

CONSTRUCTION AND TESTING REQUIREMENTS — EEC COMPONENT TYPE-APPROVAL
AND MARKING REQUIREMENTS

1. GENERAL REQUIREMENTS
 - 1.1. The driver's seat must be designed to ensure a comfortable position for the driver when controlling and manoeuvring the tractor, and to afford him the utmost protection as regards health and safety.
 - 1.2. The seat must be adjustable in the longitudinal direction and in the height without the use of a tool.
 - 1.3. The seat must be designed to reduce shocks and vibration. It must therefore be well sprung, have good vibration absorption and provide adequate support at the rear and sides.

The lateral support is considered adequate if the seat is designed to prevent the driver's body from slipping sideways.
 - 1.3.1. The seat must be adjustable for persons of different mass. Any adjustment necessary in order to comply with this requirement, must be carried out without the use of tools.
 - 1.4. The seat surface, the backrest, the lateral supports and, where fitted, the removable, folding or fixed armrests, must be padded.
 - 1.5. The seat reference point (S) must be calculated in the manner specified in Appendix 1 to Annex II.
 - 1.6. Save as otherwise provided, the measurements and tolerances must comply with the following requirements:
 - 1.6.1. the measurements given must be expressed in whole units, if necessary rounded off to the nearest whole number of units;
 - 1.6.2. the instruments used for making measurements must enable the measured value to be rounded off to the nearest whole unit and must be accurate within the following tolerance limits:
 - for length: $\pm 0.5\%$,
 - for angle measurements: $\pm 1^\circ$,
 - for determination of the mass of the tractor: ± 20 kg,
 - for measurement of tyre pressure: $+ 0.1$ bar;
 - 1.6.3. for all data relating to dimensions, a tolerance of $\pm 5\%$ is allowed.
 - 1.7. The seat must undergo the following tests, carried out on the same seat and in the order indicated below:
 - 1.7.1. determination of the suspension characteristics and the range of adjustment to the driver's mass;
 - 1.7.2. determination of lateral stability;
 - 1.7.3. determination of vertical vibration.
 - 1.8. If the seat is manufactured so that it can revolve about a vertical axis then tests are carried out with the seat facing the forward position, locked in a position, locked in a position parallel with the median longitudinal plane of the tractor.

- 1.9. The seat undergoing the above tests must possess the same characteristics with respect to construction and fittings as the seats in series production.
 - 1.10. Before the tests are carried out, the seat must have been run in by the manufacturer.
 - 1.11. A test report, which confirms that the seat has completed all the specified tests without damage and which includes details of the seat vibration characteristics, must be prepared by the test laboratory.
 - 1.12. Seats tested for Class I tractors are suitable only for tractors of that class, whereas seats tested for Class II tractors are suitable for Class I or Class II tractors.
2. **SPECIAL REQUIREMENTS**
 - 2.1. **Seat surface dimensions**
 - 2.1.1. The depth of the seat surface, measured parallel to and at a distance of 150 mm from the median longitudinal plane of the seat, must be 400 ± 50 mm (see figure below).
 - 2.1.2. The width of the seat surface, measured perpendicular to the median plane of the seat, 150 mm in front of the seat reference point (S) and at not more than 80 mm above that point, must be at least 450 mm (see figure below).
 - 2.1.3. The depth and the width of the surface of seats intended for tractors in which the rear wheel track width does not exceed 1 150 mm may be reduced if the construction of the tractor does not enable the requirements of 2.1.1 and 2.1.2 to be complied with, namely, not more than 300 mm for the depth and not more than 400 mm for the width.
 - 2.2. **Position and inclination of the backrest**
 - 2.2.1. The upper edge of the backrest of the seat must be at least 260 mm above the seat reference point (S) (see figure below).
 - 2.2.2. The backrest must have an inclination of $10 \pm 5^\circ$ (see figure below).
 - 2.3. **Inclination of the seat surface**
 - 2.3.1. The inclination towards the rear (see angle α in the figure below) of the surface of the loaded cushion must be 3 to 12° in relation to the horizontal, measured with the loading device in accordance with Appendix 1.
 - 2.4. **Seat adjustment (see figure below)**
 - 2.4.1. The seat must be adjustable in the longitudinal direction by a minimum distance of:
 - 150 mm for tractors with a rear wheel track width of more than 1 150 mm,
 - 60 mm for tractors with a rear wheel track width of 1 150 mm or less.
 - 2.4.2. The seat must be adjustable in the vertical direction over a minimum distance of:
 - 60 mm for tractors with a rear wheel track width of more than 1 150 mm,
 - 30 mm for tractors with a rear wheel track width of 1 150 mm or less.



(Dimensions in millimetres)

2.5. Seat tests

2.5.1. Test to determine the suspension characteristics and the range of adjustment to the driver's mass

2.5.1.1. The suspension system characteristics are determined by a static test. This must be carried out with the seat adjusted to accommodate a driver of a mass of 50 kg and one of a mass of 120 kg.

The limits of the range of adjustment of the seat to the driver's mass are calculated from the suspension system characteristics.

2.5.1.2. The seat is mounted on a test stand or on a tractor and a load applied to it, either directly or by means of a special device; this load must not differ by more than 5 N from the nominal load. The depression of the suspension system must be measured with an accuracy of not less than $\pm 1 \text{ mm}$. The load must be applied in accordance with the procedure laid down in section 3 of Appendix 1.

- 2.5.1.3. A complete characteristic curve representing the deflection of the suspension system must be plotted from zero load to maximum load, and back to zero. The load graduations at which the depression of the suspension system is measured must not exceed 100 N; at least eight measurement points must be plotted at approximately equal intervals in the movement of the suspension system. The point taken as the maximum load should either be that at which no further spring depression can be recorded, or a load of 1 500 N. After the load has been applied or withdrawn, the vertical depression of the suspension system must be measured 200 mm in front of the seat reference point (S); after the application or removal of the load, the seat must be allowed to return to its at rest position.
- 2.5.1.4. In the case of seats without fixed weight adjustment limits, the settings are to be so selected that:
- 2.5.1.4.1. for the lightest driver, the seat returns to the top of the suspension travel when the load is removed; and
- 2.5.1.4.2. for the heaviest driver, the load of 1 500 N just depresses the seat to the lowest limit of the suspension travel.
- 2.5.1.4.3. The range of adjustment thus determined by using the loads prescribed in 2.5.1.4.1 and 2.5.1.4.2 must be deemed greater than the range required in 3.1.1.
- 2.5.1.4.4. If the seat is equipped with a progressive lower spring stop, the lowest position of the suspension travel (see section 9 of Annex I) may be defined as the position which the seat assumes under a load of 1 000 N, in the setting for the lightest driver.
- 2.5.1.5. The mean position of the suspension system is the position which the seat assumes when it is depressed by half the full travel of the suspension system.
- 2.5.1.6. Since the characteristic curves of the suspension system are generally hysteresis loops, the load must be determined by drawing a centre line through the loop (see section 8 of Annex I, and sections A and B of Appendix 2 to Annex II).
- 2.5.1.7. To determine the limits of the adjustment range as a function of the driver's mass, the values of sections A and B (see Appendix 2) established in accordance with 2.5.1.6 must be multiplied by 1.3.
- 2.5.2. *Test to determine the lateral stability*
- 2.5.2.1. The seat must be set for the maximum permissible driver's mass and connected to the test stand or to the tractor in such a way that its base plate rests on a fixed plate (test stand) not smaller than the base plate itself.
- 2.5.2.2. A test load of 1 000 N is applied to the surface or cushion of the seat. The point of application must lie 200 mm in front of the seat reference point (S) and alternately on the two sides 150 mm from the plane of symmetry through the seat.
- 2.5.2.3. During application of the load, the variation in the lateral angle of inclination of the seat surface is measured in the end settings for horizontal and vertical seat adjustment. The permanent deformation close to the point of application of the load is not to be taken into consideration.
- 2.5.3. *Test to determine the vibration*
- The seat vibration is determined by tests on a test stand and/or a standard roadway depending on whether the seat is intended for a class (or classes) of Category A tractor or for a Category B tractor.
- 2.5.3.1. Testing on the test stand
- 2.5.3.1.1. The test stand must simulate the vertical vibrations at the point of attachment of the driver's seat.

The vibrations are generated by means of an electro-hydraulic device. The set values to be used are either those specified in Appendices 4 and 5 for the class of tractor in question, or the double-integrated acceleration signals recorded at the seat attachment of a Category B tractor moving at a speed of 12 ± 0.5 km/h on a standard roadway as defined in 2.5.3.2.1. The vibrations must be transmitted to a platform which roughly corresponds in its dimensions to the driver's cab of a tractor. To generate the vibrations, an uninterrupted double run of the set values or the double-integrated acceleration signals must be used, recorded at the seat attachment of a Category B tractor moving on a standard roadway. The measurements must not be made during the first run of the set values or of the acceleration signal.

2.5.3.1.2. Besides an attachment for the test seat, the platform must contain a steering wheel and footrest. Its configuration must be as shown in Appendix 6.

2.5.3.1.3. The test stand must have a high degree of flexural and torsional rigidity, and its bearings and guides must have no more than the technically necessary clearance. If the platform is carried on a vibrating arm, the dimension R must be at least 2 000 mm (see Appendix 6).

The test stand must be capable of simulating sinusoidal vibrations, as shown in Appendix 7, when a mass of 150 kg is applied.

2.5.3.2. Testing on a standard roadway

2.5.3.2.1. The roadway consists of two parallel strips spaced according to the wheel track of the tractor. The surface may be cast in smoothly surfaced concrete, or it may be formed of wood or concrete blocks set in a basic structure. The surface of each track strip is defined by the ordinates of elevation in relation to a base line; these ordinates are shown in the tables in Appendix 3. With regard to the roadway, the elevation is defined at intervals of 16 cm along each strip.

The roadway must be firmly set in the ground and the distance between the strips must deviate only slightly over its entire length; the tractor's wheels must be fully supported at all times. Where the strips are formed of blocks, these must be 6 to 8 cm thick, with a distance of 16 cm between the centres of the blocks.

The length of the standard roadway must be 100 m. The measurements must begin as soon as the axis of the rear axle of the tractor is perpendicular to point D = 0 on the roadway, and end as soon as the axis of the front axle of the tractor is perpendicular to point D = 100 of the test roadway (see table in Appendix 3 to Annex II).

2.5.3.2.2. The vertical vibrations transmitted are determined at a speed of 12 ± 0.5 km/h.

The prescribed speed must be maintained without the use of brakes. The vibrations must be measured on the seat and at the point where the seat is attached to the tractor, with a light and a heavy driver.

The speed of 12 km/h must be reached after a run-up track has been traversed. The surface of this run-up track must be flat and must join the standard roadway without any change in level.

2.5.3.2.3. The seat must be set for the driver's mass in accordance with the manufacturer's instructions.

2.5.3.2.4. The tractor must be fitted with a protective frame and/or cab unless of a type for which this equipment is not required. It must not carry any ancillary equipment. Moreover, there must be no ballast on the wheels or framework, and no fluid in the tyres.

2.5.3.2.5. The tyres used during the test must have the standard dimensions and ply-rating, as specified in the manufacturer's instructions. The depth of the tread must not be less than 65 % of the depth of a new tread.

2.5.3.2.6. The side-walls of the tyres must not be damaged. The pressure of the tyre must correspond to the arithmetical mean of the reference pressures recommended by the tyre manufacturer. The wheel track must correspond to that used under normal working conditions for the tractor model on which the seat is fitted.

2.5.3.2.7. The measurements at the point of seat attachment and on the seat itself must be made during the same run.

For measuring and recording the vibrations, an accelerometer, a measuring amplifier and a magnetic tape recorder or direct-reading vibration meter shall be used. The specifications for these instruments are as laid down in 2.5.3.3.2 to 2.5.3.3.6.

2.5.3.3. Specifications for tests on roadway and test stand

2.5.3.3.1. Driver's mass

The tests must be carried out with two drivers: one with a total mass of 55 kg ($\pm 10\%$), of which not more than 5 kg may be carried in a weighting belt around the body; the other with a mass of 98 kg ($\pm 10\%$), with a maximum mass of 8 kg in the belt.

2.5.3.3.2. Position of the accelerometer

To measure the vibrations transmitted to the driver, an accelerometer is fixed on a rigid and flat plate with a diameter of 250 ± 50 mm, the central part of which must be rigid up to a diameter of 75 mm and must include a rigid protective device to protect the accelerometer. This plate must be placed in the middle of the seat surface between the seat and the driver and have a natural or synthetic foam-rubber covering about 20 mm thick.

To measure the vibrations at the seat attachment, an accelerometer must be fixed at this attachment at a point not more than 100 mm from the median longitudinal plane of the tractor and not outside the vertical projection of the seat surface on the tractor.

2.5.3.3.3. Measurement of vibration acceleration

The accelerometer and the associated amplifying and transmitting equipment must respond to vibrations with an r.m.s. value of 0.05 m/s^2 , and be capable of measuring vibrations with an r.m.s. value of 5 m/s^2 and a crest factor (ratio of peak to r.m.s. value) of 3 without distortion and with a maximum error of $\pm 2.5\%$ over the range 1 to 80 Hz.

2.5.3.3.4. Magnetic tape recorder

If a tape recorder is used, it must have a maximum reproduction error of $\pm 3.5\%$ in a frequency range of 1 to 80 Hz, including change of tape speed during replay for analysis.

2.5.3.3.5. Vibration meter

2.5.3.3.5.1. Vibrations of more than 10 Hz may be disregarded. It is therefore permissible to connect upstream of the measuring instrument a low-pass filter with a cut-out frequency of about 10 Hz and an attenuation of 12 dB per octave.

2.5.3.3.5.2. This instrument must incorporate an electronic weighting filter between the sensor and the integrator device. The filter must correspond to the curve shown in Appendix 8 and the margin of error must be ± 0.5 dB in the 2 to 4 Hz frequency band and ± 2 dB for the other frequencies.

2.5.3.3.5.3. The electronic measuring device must be capable of indicating either:

— the integral (I) of the square of the weighted vibration acceleration (a_w) for a test time (T)

$$I = \int_0^T (a_w)^2 dt$$

- or the square root of that integral
- or directly the r.m.s. value of the weighted vibration acceleration (a_{weff})

$$a_{\text{weff}} = \sqrt{I/T} = \frac{\sqrt{I}}{\sqrt{T}}$$

The overall inaccuracy in the r.m.s. value of the weighted acceleration calculated in this way must be within $\pm 5\%$.

2.5.3.3.6. Calibration

All instruments must be regularly calibrated.

2.5.3.3.7. Evaluation of vibration tests

2.5.3.3.7.1. During each test, the weighted vibration acceleration for the whole test time must be determined with the direct-reading vibration meter specified in 2.5.3.3.5.

2.5.3.3.7.2. The report must give the arithmetic mean value of the corrected seat vibration acceleration for the light driver and also the arithmetic mean value of the corrected seat vibration acceleration for the heavy driver. The test report must also contain the ratio of the weighted vibration acceleration on the driver's seat to that measured at the seat attachment. This ratio shall be given to two decimal places.

2.5.3.3.7.3. The range of ambient temperature during the tests must be measured and shown in the report.

2.5.4. *Vibration tests to be carried out on tractor seats depending on their intended use*

2.5.4.1. A seat intended for use on a class (or classes) of Category A tractors must be tested on a vibration stand using the appropriate set value signals.

2.5.4.2. A seat intended for use on a type of Category B tractor must be tested on a standard roadway with a tractor of that type. However, a simulation test may also be carried out using a set value signal corresponding to the acceleration curve which was determined during the standard roadway test with the type of tractor for which the seat is intended.

2.5.4.3. A seat intended for use only on a particular type of Category A tractor may also be tested in accordance with the requirements of 2.5.4.2. In this case, component type-approval will be granted only for the type of tractor for which the test seat is intended.

2.5.5. *Procedure used for determining the seat vibration on seats intended for Category A tractors*

2.5.5.1. The vibration behaviour of the reference tractor, which is the critical factor in the test on the driver's seat, is defined by the spectral power density of the vertical acceleration (Appendices 9 and 10) recorded at the seat attachment of the reference tractor during a run on the standard roadway in accordance with the requirements of 2.5.3.2.

2.5.5.2. The value a_{wB} actually present at the seat attachment during the measurement run must be within the following ranges:

Class I reference tractors: $a_{\text{wB}} = 1.9$ to 2.2 m/s^2

Class II reference tractors: $a_{\text{wB}} = 1.6$ to 1.8 m/s^2

and must be corrected to meet the reference value of:

$$a_{wB}^* = 2.05 \text{ m/s}^2 \text{ for class I}$$

$$a_{wB}^* = 1.7 \text{ m/s}^2 \text{ for class II,}$$

the acceleration of a_{ws} measured on the driver's seat being corrected in accordance with the relation:

$$a_{ws}^* = a_{ws} \frac{a_{wB}^*}{a_{wB}}$$

- 2.5.5.3. In the case of the test carried out on the stand, the set value signals for the generation of the vertical movement of the seat attachment must have been determined by double integration of the acceleration signals recorded at the seat attachment of the Class I or II reference tractors being tested during a run on the standard roadway. These set value signals are given in Appendices 4 and 5.

The test stand must be so adjusted that the seat attachment is subjected to a weighted acceleration of:

$$a_{wB} = 1.9 \text{ to } 2.2 \text{ m/s}^2$$

for Category A tractors in Class I, and

$$a_{wB} = 1.6 \text{ to } 1.8 \text{ m/s}^2$$

for Category A tractors in Class II.

The value a_{wB} actually present at the seat attachment during measurement must be determined. In case of deviation from the reference value of:

$$a_{wB}^* = 2.05 \text{ m/s}^2 \text{ for Category A tractors in Class I}$$

$$a_{wB}^* = 1.7 \text{ m/s}^2 \text{ for Category A tractors in Class II,}$$

the acceleration of a_{ws} measured at the driver's seat being corrected in accordance with the following equation:

$$a_{ws}^* = a_{ws} \frac{a_{wB}^*}{a_{wB}}$$

- 2.5.5.4. For the test on the stand, the requirements of 2.5.3.1 apply, and the vibration must be generated in accordance with the requirements of 2.5.5.2.

For each of the two drivers referred to in 2.5.3.3.1, the weighted vibration acceleration must be measured at the seat over a period of 28 seconds. The measurement must begin at the set value signal corresponding to $t = 0$ seconds and end at the set value signal $t = 28$ seconds (see Appendices 4 and 5 to Annex II). At least two test runs must be carried out. The measured values must not deviate from the arithmetic mean by more than $\pm 5\%$.

- 2.5.6. *Procedure used for determining the seat vibration on seats intended for Category B tractors*

- 2.5.6.1. In accordance with the requirements of 2.5.4.2, the seat vibration tests are not applicable to a group or class of tractors, but only to each tractor type for which the seat is intended.

- 2.5.6.2. The standard roadway test must be carried out in accordance with the requirements of 2.5.3.2 and 2.5.3.3. In this case, the vibration acceleration measured on the driver's seat (a_{ws}) need not be corrected and is accordingly identical to the reference value a_{ws}^* .

- 2.5.6.3. The testing on the test stand must be carried out in association with a standard roadway test in accordance with the requirements of 2.5.3.1 and 2.5.3.3.

The set values for the vibration rig drive unit must be determined by double integration of the vibratory movement acceleration signal recorded in accordance with 2.5.3.1.1.

- 2.5.6.4. In the determination of the set values obtained in accordance with 2.5.6.3, the weighted vibration acceleration (a_{wp}) recorded on the test stand at the seat attachment must not deviate by more than $\pm 10\%$ from the value (a_{wF}) recorded on the standard roadway in accordance with the requirements of 2.5.6.3 (first paragraph). In the event of deviation from the value (a_{wF}) measured at the seat attachment during the test run, the weighted vibration acceleration recorded at the driver's seat during the test on the test stand must be corrected as follows:

$$a_{ws}^* = a_{ws} \frac{a_{wF}}{a_{wp}}$$

Each of the tests on the test stand must be carried out twice. The measured values must not deviate from the arithmetic mean by more than $\pm 5\%$.

3. EEC COMPONENT TYPE-APPROVAL AND MARKING REQUIREMENTS

3.1. Conditions necessary for EEC component type-approval of a seat

To be granted EEC component type-approval, a seat must, in addition to fulfilling the requirements set out above, satisfy the following conditions:

- 3.1.1. the range of adjustment as a function of the driver's mass must extend from at least 50 to 120 kg;
- 3.1.2. the change in the angle of inclination measured during the lateral stability test must not exceed 5° ;
- 3.1.3. neither of the two values described in 2.5.3.3.7.2 must exceed 1.25 m/s^2 .

3.2. Application for EEC component type-approval

- 3.2.1. The application for EEC component type-approval must be submitted by the owner of the trade name or mark or by his authorized representative.
- 3.2.2. For each type of driver's seat, the application must be accompanied by:
 - 3.2.2.1. a brief technical description, stating in particular the type of tractor or tractors for which it is intended;
 - 3.2.2.2. drawings in triplicate, sufficiently detailed to permit identification of the type of seat and showing in particular its dimensions, its weight, its suspension system and its means of attachment;
 - 3.2.2.3. at least one seat;
 - 3.2.2.4. one tractor (if necessary) representative of the type of tractor for which the seat is intended.

3.3. Inscriptions

- 3.3.1. The seat submitted for EEC component type-approval must bear the applicant's trade name or mark, clearly and indelibly inscribed.
- 3.3.2. On each seat there must be a space large enough for the EEC component type-approval mark; this space must be shown on the drawings referred to in 3.2.2.2.

3.4. EEC component type-approval

- 3.4.1. If the seat submitted in accordance with 3.2 complies with the requirements of 3.1 and 3.3, EEC component type-approval is granted and a component type-approval number allocated.

- 3.4.2. This number must not be allocated to any other type of seat.
- 3.5. **Marking**
- 3.5.1. Every seat conforming to a type approved in pursuance of this Directive must bear an EEC component type-approval mark.
- 3.5.2. This mark must consist of:
- 3.5.2.1. a rectangle surrounding the lower-case letter 'e' followed by the distinguishing number or letters of the Member State which has granted the component type-approval:
- 1 for Germany,
 - 2 for France,
 - 3 for Italy,
 - 4 for the Netherlands,
 - 6 for Belgium,
 - 11 for the United Kingdom,
 - 13 for Luxembourg,
 - 18 for Denmark,
 - IRL for Ireland,
- 3.5.2.2. the EEC component type-approval number which corresponds to the number of the EEC component type-approval certificate issued for the type of seat, below and close to the rectangle; and
- 3.5.2.3. the indication, above and close to the rectangle, of the type of Category A tractor for which the seat is intended. This is to be shown as follows:
- for Category A tractors in Class I: I.
 - for Category A tractors in Classes I and II: I and II.
- If no indication is given above the rectangle, the seat is intended for a Category B tractor.
- 3.5.3. The EEC component type-approval mark must be affixed to the seat in such a way that it is indelible and clearly legible even when the seat is mounted on the tractor.
- 3.5.4. An example of the component type-approval mark is given in Appendix 11.
- 3.5.5. The dimensions of the various parts of this mark must not be smaller than the minimum dimensions specified for marking as illustrated in Appendix 11.
-

*Appendix 1***Method of determining the seat reference point (S)****1. DEFINITION OF THE REFERENCE POINT (S)**

'Seat reference point' (S) means the point of intersection in the median longitudinal plane of the seat between the tangential plane at the base of the padded backrest and a horizontal plane. This horizontal plane intersects the lower surface of the seat 150 mm in front of the seat reference point (S).

2. DEVICE FOR DETERMINING THE SEAT REFERENCE POINT (S)

The device illustrated in Figure 1 consists of a seat pan board and backrest boards. The lower backrest boards must be hinged in the region of the ischium humps (A) and the loin (B), the hinge (B) being adjustable in height.

3. METHOD OF DETERMINING THE SEAT REFERENCE POINT (S)

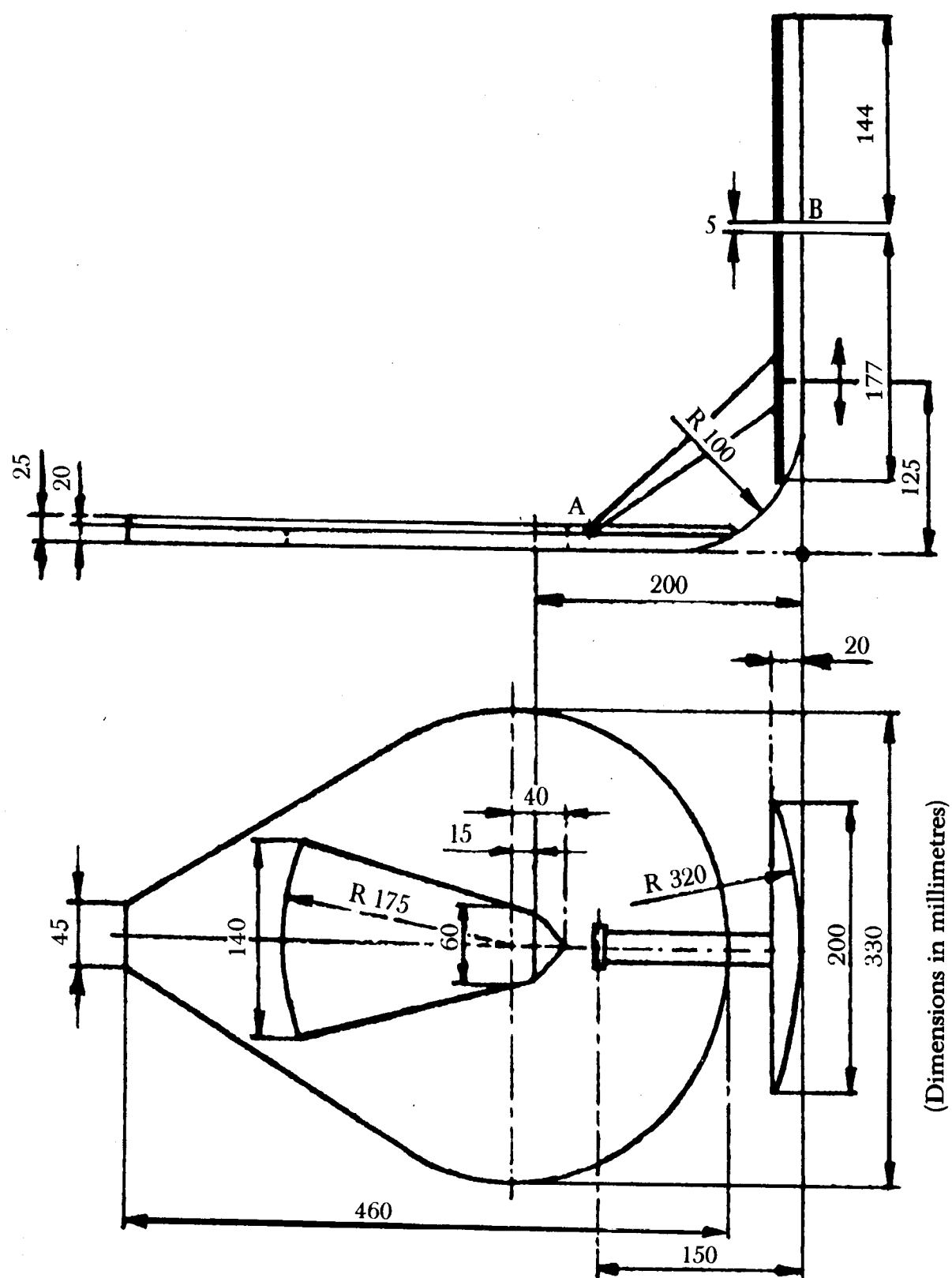
The seat reference point (S) must be obtained by using the device illustrated in Figures 1 and 2, which simulates loading by a human occupant. The device must be positioned on the seat. It must then be loaded with a force of 550 N at a point 50 mm in front of hinge (A) and two parts of the backrest lightly pressed tangentially against the padded backrest.

If it is not possible to determine definite tangents to each area of the padded backrest (below and above the lumbar region) the following procedure must be adopted:

- (a) where there is no possibility of defining the tangent to the lowest possible area, the lower part of the backrest board in a vertical position must be lightly pressed against the padded backrest;
- (b) where there is no possibility of defining the tangent to the highest possible area, if the lower part of the backrest board is vertical, the hinge must be fixed at a height of 230 mm above the seat reference point (S). The two parts of the backrest board in a vertical position must then be lightly pressed tangentially against the padded backrest.

Figure 1

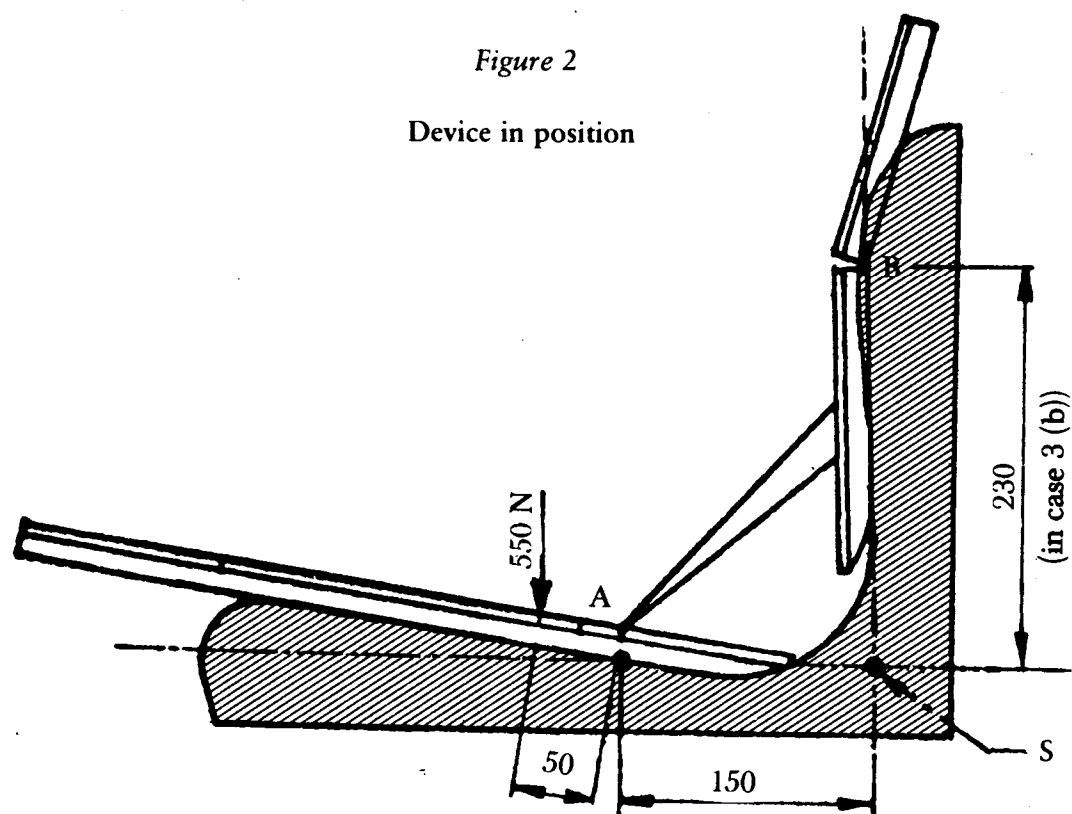
Device for determining the seat reference point (S)



(Dimensions in millimetres)

Figure 2

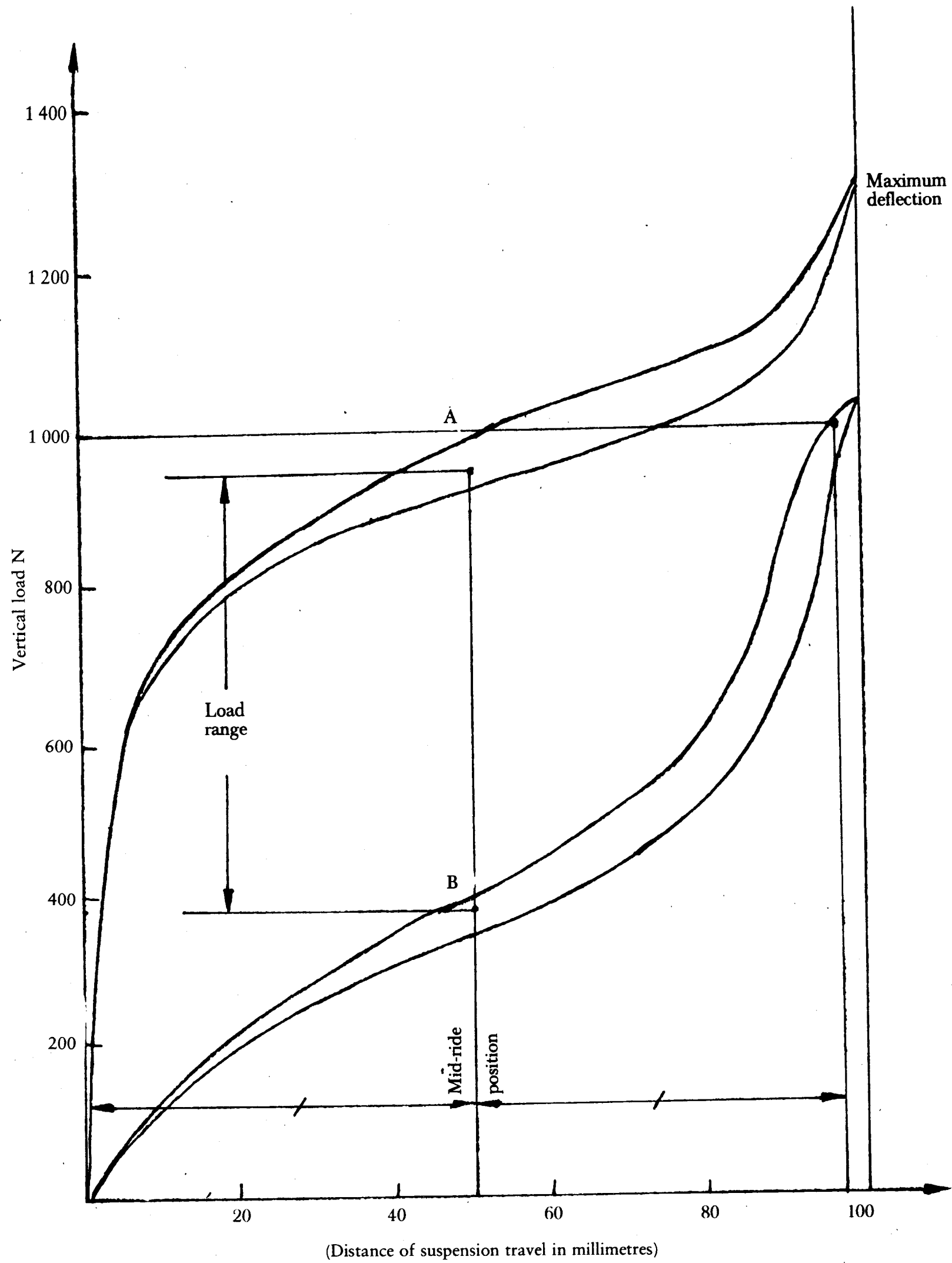
Device in position



Appendix 2

Test to determine the characteristics of the suspension system

Hysteresis curves to determine the load adjustment range (2.5.1)



Appendix 3

Test on standard roadway

Table of elevation ordinates in relation to an arbitrary basic level defining the surface of each strip of the roadway (2.5.3.2.1)

D = distance from starting point (metres)

L = ordinate of the left-hand strip (mm)

R = ordinate of the right-hand strip (mm)

D	L	R	D	L	R	D	L	R	D	L	R
0	115	140	7.20	65	90	14.40	65	95	21.60	70	90
0.16	110	125	7.36	75	95	14.56	65	100	21.76	75	95
0.32	110	140	7.52	75	100	14.72	65	90	21.92	75	95
0.48	115	135	7.68	95	95	14.88	65	90	22.08	75	90
0.64	120	135	7.84	115	110	15.04	65	85	22.24	85	90
0.80	120	125	8.00	115	100	15.20	55	85	22.40	85	95
0.96	125	135	8.16	125	110	15.36	65	85	22.58	90	85
1.12	120	125	8.32	110	100	15.52	65	85	22.72	90	85
1.28	120	115	8.48	110	100	15.68	55	75	22.88	95	85
1.44	115	110	8.64	110	95	15.84	55	85	23.04	95	85
1.60	110	100	8.80	110	95	16.00	65	75	23.20	100	85
1.76	110	110	8.96	110	95	16.16	55	85	23.36	100	75
1.92	110	110	9.12	110	100	16.32	50	75	23.52	110	85
2.08	115	115	9.28	125	90	16.48	55	75	23.68	110	85
2.24	110	110	9.44	120	100	16.64	65	75	23.84	110	85
2.40	100	110	9.60	135	95	16.80	65	75	24.00	100	75
2.56	100	100	9.76	120	95	16.96	65	85	24.16	100	75
2.72	95	110	9.92	120	95	17.12	65	70	24.32	95	70
2.88	95	95	10.08	120	95	17.28	65	65	24.48	100	70
3.04	90	95	10.24	115	85	17.44	65	75	24.64	100	70
3.20	90	100	10.40	115	90	17.60	65	75	24.80	115	75
3.36	85	100	10.56	115	85	17.76	50	75	24.96	110	75
3.52	90	100	10.72	115	90	17.92	55	85	25.12	110	85
3.68	90	115	10.88	120	90	18.08	55	85	25.28	100	75
3.84	95	110	11.04	110	75	18.24	65	85	25.44	110	95
4.00	90	110	11.20	110	75	18.40	70	75	25.60	100	95
4.16	90	95	11.36	100	85	18.56	75	75	25.76	115	100
4.32	95	100	11.52	110	85	18.72	95	75	25.92	115	100
4.48	100	100	11.68	95	90	18.88	90	75	26.08	110	95
4.64	100	90	11.84	95	90	19.04	90	70	26.24	115	95
4.80	90	90	12.00	95	85	19.20	95	70	26.40	110	95
4.96	90	90	12.16	100	95	19.36	85	70	26.56	100	95
5.12	95	90	12.32	100	90	19.52	85	75	26.72	100	95
5.28	95	70	12.48	95	85	19.68	75	85	26.88	100	100
5.44	95	65	12.64	95	85	19.84	85	85	27.04	100	95
5.60	90	50	12.80	95	90	20.00	75	90	27.20	100	95
5.76	95	50	12.96	85	90	20.16	85	85	27.36	110	90
5.92	85	50	13.12	85	85	20.32	75	70	27.52	115	90
6.08	85	55	13.28	75	90	20.48	70	75	27.68	115	85
6.24	75	55	13.44	75	95	20.64	65	75	27.84	110	90
6.40	75	55	13.60	75	90	20.80	70	75	28.00	110	85
6.56	70	65	13.76	70	75	20.96	65	75	28.16	110	85
6.72	75	75	13.92	70	90	21.12	70	75	28.32	100	85
6.88	65	75	14.08	70	100	21.28	70	85	28.48	100	90
7.04	65	85	14.24	70	110	21.44	70	85	28.64	90	85

D	L	R	D	L	R	D	L	R	D	L	R
28-80	90	75	38-40	110	35	48-00	75	85	57-60	95	115
28-96	75	90	38-56	100	35	48-16	90	95	57-76	85	110
29-12	75	75	38-72	115	35	48-32	95	95	57-92	90	115
29-28	75	75	38-88	100	35	48-48	100	120	58-08	90	110
29-44	70	75	39-04	100	35	48-64	110	100	58-24	90	100
29-60	75	75	39-20	110	30	48-30	115	100	58-40	85	95
29-76	75	85	39-36	110	45	48-96	115	115	58-56	90	95
29-92	85	75	39-52	110	50	49-12	120	115	58-72	85	90
30-08	75	75	39-68	100	55	49-28	120	110	58-88	90	90
30-24	85	75	39-84	110	50	49-44	115	95	59-04	90	95
30-40	75	75	40-00	90	55	49-60	115	90	59-20	90	115
30-56	70	75	40-16	85	55	49-76	115	90	59-36	90	115
30-72	75	75	40-32	90	65	49-92	110	95	59-52	90	115
30-88	85	75	40-48	90	65	50-08	110	100	59-68	85	110
31-04	90	75	40-64	90	70	50-24	100	110	59-84	75	110
31-20	90	85	40-80	95	75	50-40	100	120	60-00	90	115
31-36	100	75	40-96	95	75	50-56	95	120	60-16	90	120
31-52	100	75	41-12	95	75	50-72	95	115	60-32	90	120
31-68	120	85	41-28	90	90	50-88	95	120	60-48	90	120
31-84	115	75	41-44	90	95	51-04	95	120	60-64	95	120
32-00	120	85	41-60	85	95	51-20	90	135	60-80	95	120
32-16	120	85	41-76	85	100	51-36	95	125	60-96	90	120
32-32	135	90	41-92	90	100	51-52	95	120	61-12	90	115
32-48	145	95	42-08	90	95	51-68	100	120	61-28	95	110
32-64	160	95	42-24	85	100	51-84	100	120	61-44	95	110
32-80	165	90	42-40	85	110	52-00	100	120	61-60	100	100
32-96	155	90	42-56	95	110	52-16	100	125	61-76	110	100
33-12	145	90	42-72	95	115	52-32	110	125	61-92	100	100
33-28	140	95	42-88	95	115	52-48	110	125	62-08	100	100
33-44	140	85	43-04	100	100	52-64	100	125	62-24	95	100
33-60	140	85	43-20	100	95	52-80	100	120	62-40	95	100
33-76	125	75	43-36	100	95	52-96	100	120	62-56	95	100
33-92	125	75	43-52	100	90	53-12	110	115	62-72	90	100
34-08	115	85	43-68	110	95	53-28	100	110	62-88	90	100
34-24	120	75	43-84	100	100	53-44	110	110	63-04	90	100
34-40	125	75	44-00	110	90	53-60	95	110	63-20	90	90
34-56	115	85	44-16	100	85	53-76	95	110	63-36	90	90
34-72	115	75	44-32	110	90	53-92	100	110	63-52	85	90
34-88	115	90	44-48	110	85	54-08	95	100	63-68	85	90
35-04	115	100	44-64	100	85	54-24	100	100	63-84	75	85
35-20	120	100	44-80	100	90	54-40	100	100	64-00	75	85
35-36	120	100	44-96	95	90	54-56	100	100	64-16	75	75
35-52	135	95	45-12	90	95	54-72	95	100	64-32	75	75
35-68	135	95	45-28	90	100	54-88	100	100	64-48	70	75
35-84	135	95	45-44	95	100	55-04	100	115	64-64	70	70
36-00	135	90	45-60	90	90	55-20	110	115	64-80	70	55
36-16	120	75	45-76	85	90	55-36	100	110	64-96	70	45
36-32	115	75	45-92	75	90	55-52	110	100	65-12	65	55
36-48	110	70	46-08	85	90	55-68	100	110	65-28	65	55
36-64	100	65	46-24	75	90	55-84	100	110	65-44	65	65
36-80	110	55	46-40	75	90	56-00	100	110	65-60	55	70
36-96	115	55	46-56	75	90	56-16	95	115	65-76	55	75
37-12	100	50	46-72	85	90	56-32	90	110	65-92	55	75
37-28	115	50	46-88	85	85	56-48	95	110	66-08	55	75
37-44	110	50	47-04	90	85	56-64	95	110	66-24	55	85
37-60	100	65	47-20	75	85	56-80	90	100	66-40	55	85
37-76	90	55	47-36	65	75	56-96	100	100	66-56	65	90
37-92	95	55	47-52	70	70	57-12	100	95	66-72	70	90
38-08	90	35	47-68	70	75	57-28	95	100	66-88	70	110
38-24	90	35	47-84	70	75	57-44	100	100	67-04	65	100

D	L	R	D	L	R	D	L	R	D	L	R
67-20	55	100	76-00	110	135	84-80	120	155	93-60	120	145
67-36	65	100	76-16	100	125	84-96	115	145	93-76	115	140
67-52	50	100	76-32	100	125	85-12	115	155	93-92	115	140
67-68	50	85	76-48	100	125	85-28	120	160	94-08	115	140
67-84	50	90	76-64	110	125	85-44	120	165	94-24	115	140
68-00	50	100	76-80	115	125	85-60	120	160	94-40	115	140
68-16	55	100	76-96	120	125	85-76	125	165	94-56	115	140
68-32	55	95	77-12	120	125	85-92	135	160	94-72	115	135
68-48	65	90	77-28	120	135	86-08	135	160	94-88	115	135
68-64	50	85	77-44	110	125	86-24	125	155	95-04	110	135
68-80	50	70	77-60	100	125	86-40	125	155	95-20	110	135
68-96	50	70	77-76	120	135	86-56	120	145	95-36	110	135
69-12	50	65	77-92	120	125	86-72	120	145	95-52	115	135
69-28	50	55	78-03	120	125	86-98	110	140	95-68	100	140
69-44	45	50	78-24	115	125	87-04	110	140	95-84	95	135
69-60	35	50	78-40	115	120	87-20	110	140	96-00	100	125
69-76	35	55	78-56	115	120	87-36	110	140	96-16	95	125
69-92	35	65	78-72	110	120	87-52	110	140	96-32	95	125
70-08	35	65	78-88	100	120	87-68	100	135	96-48	95	125
70-24	35	65	79-04	100	120	87-84	100	135	96-64	110	125
70-40	35	55	79-20	95	120	88-00	100	135	96-80	95	120
70-58	45	55	79-36	95	120	88-16	100	125	96-96	95	120
70-72	50	55	79-52	95	125	88-32	110	120	97-12	95	120
70-88	50	50	79-68	95	125	88-48	115	120	97-28	95	110
71-04	50	45	79-84	100	120	88-64	110	120	97-44	100	115
71-20	50	45	80-00	95	125	88-80	110	125	97-60	110	120
71-36	50	50	80-16	95	125	88-96	100	125	97-76	110	115
71-52	45	45	80-32	95	125	89-12	100	125	97-92	100	115
71-68	45	55	80-48	100	120	89-28	95	125	98-08	95	115
71-84	55	65	80-64	100	125	89-44	95	125	98-24	100	115
72-00	55	65	80-80	100	125	89-60	100	120	98-40	95	115
72-16	70	65	80-96	110	125	89-76	100	135	98-52	100	115
72-32	70	75	81-12	115	135	89-92	110	140	98-72	100	110
72-48	75	85	81-28	110	140	90-08	110	135	98-88	110	100
72-64	75	85	81-44	115	140	90-24	110	140	99-04	95	95
72-80	75	90	81-60	110	140	90-40	100	145	99-20	90	100
72-96	85	95	81-76	115	140	90-56	100	155	99-36	90	100
73-12	90	100	81-92	110	140	90-72	110	155	99-52	75	110
73-28	90	110	82-08	110	140	90-88	110	155	99-68	75	115
73-44	90	115	82-24	110	135	91-04	100	155	99-84	75	115
73-60	90	120	82-40	110	135	91-20	110	155	100-00	75	110
73-76	90	115	82-56	100	125	91-36	110	160			
73-92	90	115	87-72	110	125	91-52	115	160			
74-08	110	115	82-88	110	125	91-68	110	155			
74-24	100	100	83-04	100	125	91-84	115	155			
74-40	100	110	83-20	100	120	92-00	115	140			
74-56	100	110	83-36	100	125	92-16	115	155			
74-72	95	115	83-52	100	120	92-32	120	155			
74-88	95	120	83-68	100	135	92-48	125	145			
75-04	95	125	83-84	95	140	92-64	125	155			
75-20	95	135	84-00	100	135	92-80	125	155			
75-36	100	135	84-16	110	140	92-96	120	155			
75-52	100	140	84-32	110	140	93-12	120	145			
75-68	100	140	84-48	110	140	93-28	120	145			
75-84	100	140	84-64	110	140	93-44	115	145			

Appendix 4

Set-value signals for the test-stand testing of driver's seats for Category A tractors in Class I (2.5.3.1.1)

PS = set point
a = amplitude of the required value signal in 10^{-4}m ,
t = measurement time in seconds

These signals are shown in the table for 701 required points.

They can be stored numerically and, after passing through a low-pass filter with a cut-off frequency of about 10 Hz and high-frequency attenuation of 12 dB/octave, they show the amplitude of the set value for the electro-hydraulically controlled test stand. The set-value signals must be repeated without interruption.

PS No	a 10 ⁻⁴ m	t s	PS No	a 10 ⁻⁴ m	t s	PS No	a 10 ⁻⁴ m	t s	PS No	a 10 ⁻⁴ m	t s
0	0000	0									
1	0344	0.04	47	-0.550	2.0	93	-0.000	4.0	139	0.229	6.0
2	0333	0.08	48	-0.576		94	0.025		140	0.212	
3	0272		49	-0.622		95	0.065		141	0.157	
4	0192		50	-0.669		96	0.076		142	0.097	
5	0127		51	-0.689		97	0.054		143	0.055	
6	0115		52	-0.634		98	-0.016		144	0.073	
7	0169		53	-0.542		99	-0.066		145	0.175	
8	0243		54	-0.429		100	-0.048		146	0.287	
9	0298		55	-0.314		101	-0.011		147	0.380	
10	0320		56	-0.282		102	0.061		148	0.406	
11	0270		57	-0.308	103	0.131	149	0.338			
12	0191		58	-0.373	104	0.168	150	0.238			
13	0124		59	-0.446	105	0.161	151	0.151			
14	0057		60	-0.469	106	0.131	152	0.080			
15	0027		61	-0.465	107	0.086	153	0.090			
16	0004		62	-0.417	108	0.067	154	0.146			
17	-0.013		63	-0.352	109	0.088	155	0.196			
18	-0.039		64	-0.262	110	0.110	156	0.230			
19	-0.055		65	-0.211	111	0.148	157	0.222			
20	-0.056		66	-0.180	112	0.153	158	0.184			
21	-0.059		67	-0.182	113	0.139	159	0.147			
22	-0.068		68	-0.210	114	0.119	160	0.115			
23	-0.104		69	-0.222	115	0.099	161	0.114			
24	-0.134		70	-0.210	116	0.091	162	0.140			
25	-0.147	1.0	71	-0.186	117	0.078	163	0.198			
26	-0.144		72	-0.141	118	0.059	164	0.257			
27	-0.143		73	-0.088	119	0.062	165	0.281			
28	-0.155		74	-0.033	120	0.072	166	0.276			
29	-0.179		75	0.000	121	0.122	167	0.236			
30	-0.181		76	0.001	122	0.155	168	0.201			
31	-0.155		77	-0.040	123	0.191	169	0.167			
32	-0.139		78	-0.098	124	0.184	170	0.145			
33	-0.141		79	-0.130	125	0.143	171	0.135			
34	-0.170		80	-0.115	126	0.087	172	0.165			
35	-0.221		81	-0.068	127	0.029	173	0.242			
36	-0.259		82	-0.036	128	0.010	174	0.321			
37	-0.281		83	-0.032	129	0.025	175	0.399	7.0		
38	-0.268		84	-0.050	130	0.074	176	0.411			
39	-0.258		85	-0.052	131	0.106	177	0.373			
40	-0.285		86	-0.039	132	0.115	178	0.281			
41	-0.348		87	-0.011	133	0.090	179	0.179			
42	-0.437		88	0.014	134	0.048	180	0.109			
43	-0.509		89	0.041	135	0.038	181	0.094			
44	-0.547		90	0.054	136	0.066	182	0.136			
45	-0.562		91	0.040	137	0.116	183	0.206			
46	-0.550		92	0.006	138	0.180	184	0.271			

PS No	a 10 ⁻⁴ m	t s	PS No	a 10 ⁻⁴ m	t s	PS No	a 10 ⁻⁴ m	t s	PS No	a 10 ⁻⁴ m	t s
185	0 267	8-0	249	0 041	10-0	313	-0 320	13-0	377	-0 027	16-0
186	0 203		250	0 090		314	-0 244		378	0 099	
187	0 091		251	0 136		315	-0 237		379	0 186	
188	0 009		252	0 151		316	-0 310		380	0 174	
189	0 006		253	0 123		317	-0 413		381	0 085	
190	0 074		254	0 070		318	-0 462		382	-0 031	
191	0 186		255	0 034		319	-0 456		383	-0 086	
192	0 280		256	-0 001		320	-0 351		384	-0 069	
193	0 342		257	-0 010		321	-0 181		385	0 012	
194	0 330		258	-0 031		322	-0 045		386	0 103	
195	0 265		259	-0 061	11-0	323	0 013	14-0	387	0 164	
196	0 184		260	-0 086		324	-0 037		388	0 129	
197	0 118		261	-0 104		325	-0 160		389	0 047	
198	0 105		262	-0 103		326	-0 247		390	-0 055	
199	0 128		263	-0 093		327	-0 258		391	-0 097	
200	0 174		264	-0 074		328	-0 187		392	-0 056	
201	0 215		265	-0 056		329	-0 069		393	0 043	
202	0 229		266	-0 039		330	0 044		394	0 162	
203	0 221		267	-0 000		331	0 078		395	0 220	
204	0 199		268	0 033		332	0 061		396	0 205	
205	0 164	9-0	269	0 067	12-0	333	-0 012	15-0	397	0 129	
206	0 162		270	0 097		334	-0 102		398	0 053	
207	0 174		271	0 085		335	-0 127		399	0 022	
208	0 210		272	0 034		336	-0 103		400	0 052	
209	0 242		273	0 002		337	-0 045		401	0 114	
210	0 270		274	-0 050		338	0 039		402	0 175	
211	0 285		275	-0 080		339	0 094		403	0 191	
212	0 285		276	-0 096		340	0 107		404	0 172	
213	0 258		277	-0 121		341	0 058		405	0 138	
214	0 223		278	-0 116		342	-0 011		406	0 092	
215	0 194		279	-0 092	12-0	343	-0 078		407	0 052	
216	0 165		280	-0 060		344	-0 093		408	0 051	
217	0 132		281	-0 018		345	-0 068		409	0 025	
218	0 106		282	-0 011		346	-0 025		410	0 001	
219	0 077		283	-0 052		347	0 021		411	-0 026	
220	0 065		284	-0 143		348	0 008		412	-0 065	
221	0 073		285	-0 241		349	-0 016		413	-0 073	
222	0 099		286	-0 330		350	-0 038		414	-0 038	
223	0 114		287	-0 343		351	-0 024		415	-0 001	
224	0 111		288	-0 298		352	0 041		416	0 029	
225	0 083	9-0	289	-0 235		353	0 135	15-0	417	0 030	
226	0 026		290	-0 203		354	0 196		418	-0 005	
227	-0 028		291	-0 249		355	0 171		419	-0 045	
228	-0 052		292	-0 356		356	0 053		420	-0 068	
229	-0 069		293	-0 448		357	-0 111		421	-0 093	
230	-0 077		294	-0 486		358	-0 265		422	-0 075	
231	-0 067		295	-0 444		359	-0 348		423	-0 067	
232	-0 095		296	-0 343		360	-0 336		424	-0 051	
233	-0 128		297	-0 240		361	-0 258		425	-0 049	
234	-0 137		298	-0 215		362	-0 155		426	-0 059	
235	-0 144		299	-0 277		363	-0 059		427	-0 077	
236	-0 131		300	-0 399		364	-0 056		428	-0 107	
237	-0 155		301	-0 527	12-0	365	-0 123		429	-0 143	
238	-0 208		302	-0 585		366	-0 187		430	-0 141	
239	-0 266		303	-0 569		367	-0 218		431	-0 142	
240	-0 285		304	-0 479		368	-0 136		432	-0 106	
241	-0 276		305	-0 363		369	0 012		433	-0 080	
242	-0 205		306	-0 296		370	0 149		434	-0 050	
243	-0 110		307	-0 299		371	0 212		435	-0 030	
244	-0 020		308	-0 374		372	0 153		436	-0 014	
245	0 041		309	-0 466		373	0 021		437	-0 017	
246	0 053		310	-0 528		374	-0 104		438	-0 031	
247	0 020		311	-0 520	12-0	375	-0 160	15-0	439	-0 037	
248	0 016		312	-0 432		376	-0 142		440	-0 068	

PS No	a 10 ⁻⁴ m	t s	PS No	a 10 ⁻⁴ m	t s	PS No	a 10 ⁻⁴ m	t s	PS No	a 10 ⁻⁴ m	t s
441	-0 113	18-0	506	0 184	21-0	571	0 285	23-0	636	-0 178	26-0
442	-0 167		507	0 139		572	0 295		637	-0 188	
443	-0 203		508	0 062		573	0 261		638	-0 198	
444	-0 191		509	0 027		574	0 201		639	-0 194	
445	-0 135		510	0 030		575	0 145		640	-0 187	
446	-0 047		511	0 067		576	0 142		641	-0 170	
447	0 028		512	0 146		577	0 163		642	-0 161	
448	0 032		513	0 247		578	0 222		643	-0 154	
449	-0 031		514	0 314		579	0 284		644	-0 140	
450	-0 108		515	0 330		580	0 334		645	-0 115	
451	-0 157		516	0 289		581	0 342		646	-0 055	
452	-0 155		517	0 224		582	0 301		647	0 001	
453	-0 081		518	0 179		583	0 240		648	0 049	
454	-0 012		519	0 184		584	0 205		649	0 085	
455	0 053		520	0 216		585	0 216		650	0 094	
456	0 085		521	0 229		586	0 257		651	0 071	
457	0 054		522	0 210		587	0 326		652	0 039	
458	0 002		523	0 130		588	0 363		653	-0 001	
459	-0 026		524	0 062		589	0 380		654	-0 027	
460	-0 034		525	0 006		590	0 358	24-0	655	-0 025	
461	-0 014	19-0	526	-0 004	22-0	591	0 303		656	0 000	
462	0 031		527	0 004		592	0 273		657	0 028	
463	0 061		528	0 018		593	0 341		658	0 045	
464	0 098		529	0 031		594	0 249		659	0 019	
465	0 123		530	0 020		595	0 252		660	-0 032	
466	0 103		531	0 014		596	0 245		661	-0 101	
467	0 078		532	-0 011		597	0 244		662	-0 162	
468	0 046		533	-0 022		598	0 225		663	-0 198	
469	0 042		534	-0 029		599	0 212		664	-0 193	
470	0 044		535	-0 042		600	0 180		665	-0 149	
471	0 072		536	-0 066		601	0 160		666	-0 096	
472	0 109		537	-0 120		602	0 130		667	-0 075	
473	0 133		538	-0 188		603	0 118		668	-0 086	
474	0 138		539	-0 241		604	0 104		669	-0 151	
475	0 125		540	-0 252		605	0 081		670	-0 246	
476	0 095		541	-0 243		606	0 040		671	-0 329	
477	0 105		542	-0 212		607	-0 004		672	-0 382	
478	0 129		543	-0 183		608	-0 040		673	-0 392	
479	0 181		544	-0 170		609	-0 057		674	-0 340	
480	0 206		545	-0 189		610	-0 049		675	-0 286	27-0
481	0 200	20-0	546	-0 233		611	-0 021	25-0	676	-0 249	
482	0 168		547	-0 286		612	0 011		677	-0 245	
483	0 140		548	-0 311		613	0 033		678	-0 298	
484	0 149		549	-0 280		614	0 038		679	-0 348	
485	0 186		550	-0 215		615	0 027		680	-0 366	
486	0 237		551	-0 128		616	0 019		681	-0 330	
487	0 242		552	-0 038		617	0 024		682	-0 247	
488	0 207		553	-0 018		618	0 040		683	-0 175	
489	0 130		554	-0 024		619	0 069		684	-0 135	
490	0 055		555	-0 052		620	0 082		685	-0 149	
491	0 015		556	-0 055		621	0 086		686	-0 165	
492	0 014		557	-0 033		622	0 068		687	-0 178	
493	0 036		558	0 013		623	0 056		688	-0 142	
494	0 054		559	0 061		624	0 036		689	-0 097	
495	0 056		560	0 079		625	0 006		690	-0 067	
496	0 022		561	0 060		626	-0 015		691	-0 051	
497	-0 032		562	0 024		627	-0 049		692	-0 071	
498	-0 076		563	-0 013		628	-0 071		693	-0 101	
499	-0 108		564	-0 027		629	-0 075		694	-0 110	
500	-0 099		565	-0 018		630	-0 078		695	-0 091	
501	-0 029	28-0	566	0 011		631	-0 074	28-0	696	-0 043	
502	0 051		567	0 064		632	-0 069		697	0 020	
503	0 138		568	0 111		633	-0 094		698	0 061	
504	0 199		569	0 171		634	-0 116		699	0 064	
505	0 213		570	0 238		635	-0 150		700	0 036	

Appendix 5

Set-value signals for the test stand inspection of driver's seats for Category A tractors in Class II
(2.5.3.1.1)

PS = set point
a = amplitude of the required value signal in 10^{-4}m
t = measurement time in seconds

These signals are shown in the table for 701 set points.

They can be stored numerically and, after passing through a low-pass filter with a cut-off frequency of about 10 Hz and high-frequency attenuation of 12 dB/octave, they show the amplitude of the set value for the electro-hydraulically controlled test stand. The set-value signals must be repeated without interruption.

PS No	a 10^{-4}m	t s	PS No	a 10^{-4}m	t s	PS No	a 10^{-4}m	t s	PS No	a 10^{-4}m	t s
0	0 000	0									
1	0 156	0.04	47	-0 364		93	-0 004		139	-0 154	
2	0 147	0.08	48	-0 410		94	-0 039		140	-0 164	
3	0 144		49	-0 407		95	-0 100		141	-0 160	
4	0 162		50	-0 367	2.0	96	-0 171		142	-0 128	
5	0 210		51	-0 289		97	-0 218		143	-0 059	
6	0 272		52	-0 180		98	-0 226		144	0 015	
7	0 336		53	-0 081		99	-0 190		145	0 074	
8	0 382		54	-0 000		100	-0 116	4.0	146	0 034	
9	0 404		55	-0 011		101	-0 054		147	0 042	
10	0 408		56	-0 070		102	-0 001		148	-0 034	
11	0 376		57	-0 168		103	-0 001		149	-0 101	
12	0 324		58	-0 256		104	-0 045		150	-0 147	6.0
13	0 275		59	-0 307		105	-0 126		151	-0 141	
14	0 226		60	-0 302		106	-0 191		152	-0 091	
15	0 176		61	-0 249		107	-0 223		153	-0 031	
16	0 141		62	-0 157		108	-0 206		154	0 017	
17	0 126		63	-0 056		109	-0 168		155	0 027	
18	0 144		64	0 013		110	-0 122		156	-0 012	
19	0 180		65	0 044		111	-0 095		157	-0 058	
20	0 205		66	0 025		112	-0 101		158	-0 127	
21	0 198		67	-0 026		113	-0 114		159	-0 151	
22	0 184		68	-0 077		114	-0 161		160	-0 125	
23	0 138		69	-0 115		115	-0 212		161	-0 049	
24	0 102		70	-0 131		116	-0 254		162	0 045	
25	0 068	1.0	71	-0 102		117	-0 273		163	0 104	
26	0 050		72	-0 031		118	-0 258		164	0 122	
27	0 055		73	0 035		119	-0 211		165	0 104	
28	0 078		74	0 078		120	-0 169		166	0 046	
29	0 120		75	0 057	3.0	121	-0 125		167	-0 018	
30	0 184		76	0 000		122	-0 115		168	-0 047	
31	0 209		77	-0 069		123	-0 127		169	-0 036	
32	0 224		78	-0 124		124	-0 156		170	0 016	
33	0 206		79	-0 143		125	-0 185	5.0	171	0 145	
34	0 157		80	-0 129		126	-0 232		172	0 257	
35	0 101		81	-0 091		127	-0 256		173	0 330	
36	0 049		82	-0 045		128	-0 260		174	0 330	
37	-0 002		83	-0 004		129	-0 260		175	0 258	7.0
38	-0 038		84	-0 004		130	-0 247		176	0 138	
39	-0 068		85	-0 016		131	-0 228		177	0 034	
40	-0 088		86	-0 047		132	-0 204		178	-0 037	
41	-0 100		87	-0 080		133	-0 192		179	-0 030	
42	-0 110		88	-0 083		134	-0 179		180	0 026	
43	-0 151		89	-0 080		135	-0 144		181	0 141	
44	-0 183		90	-0 060		136	-0 128		182	0 216	
45	-0 234		91	-0 029		137	-0 117		183	0 243	
46	-0 303		92	-0 013		138	-0 131		184	0 188	

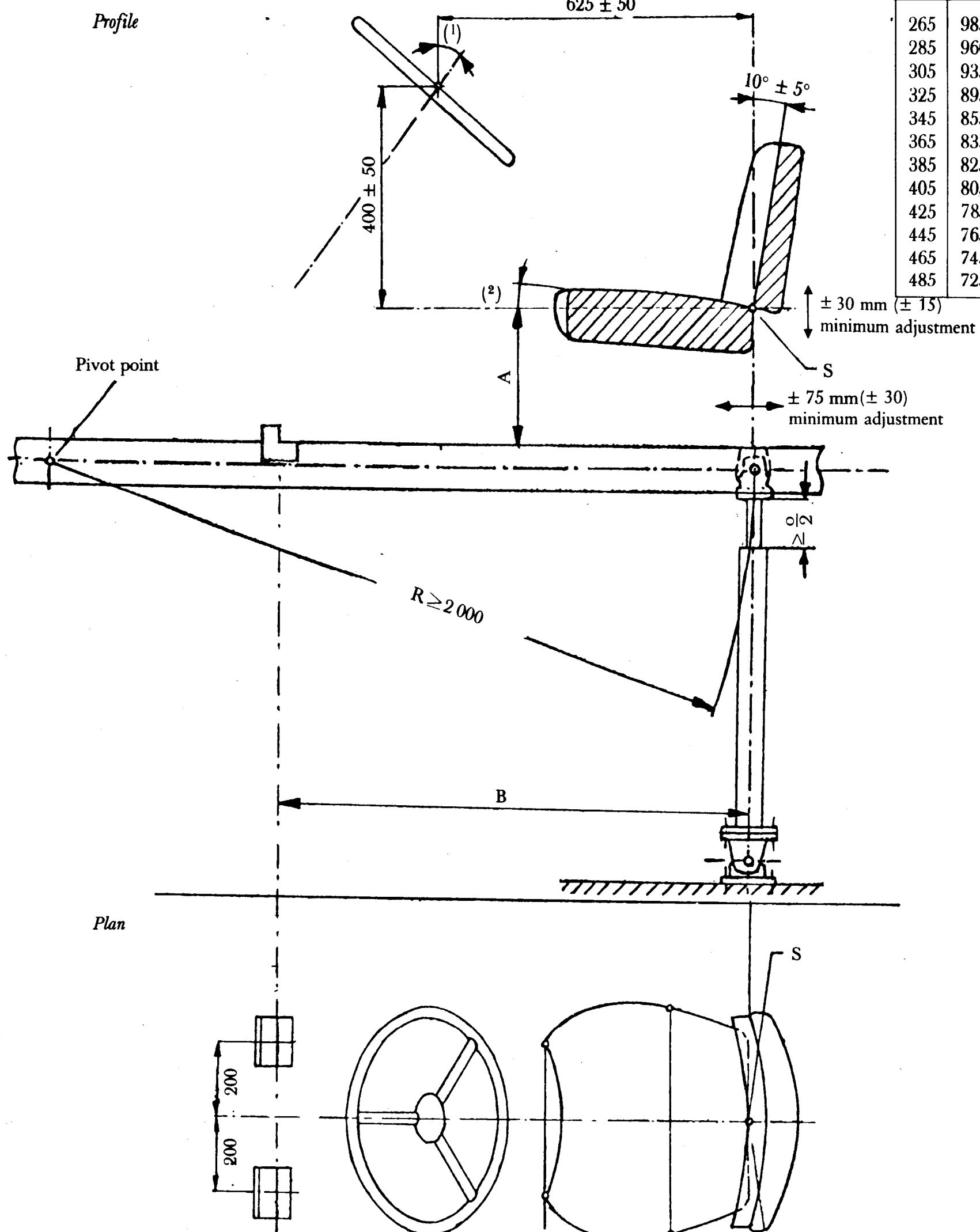
PS No	a 10 ⁻⁴ m	t s	PS No	a 10 ⁻⁴ m	t s	PS No	a 10 ⁻⁴ m	t s	PS No	a 10 ⁻⁴ m	t s
185	0079	8-0	249	0220	10-0	313	-0302	13-0	377	0053	16-0
186	-0015		250	0210		314	-0318		378	0078	
187	-0047		251	0185		315	-0316		379	0068	
188	-0008		252	0149		316	-0293		380	0033	
189	0091		253	0100		317	-0238		381	0004	
190	0230		254	0057		318	-0154		382	-0000	
191	0340		255	0035		319	-0070		383	-0013	
192	0381		256	0006		320	-0021		384	-0003	
193	0332		257	-0000		321	-0029		385	0000	
194	0225		258	0010		322	-0075		386	-0001	
195	0099		259	0034	11-0	323	-0138	14-0	387	-0010	
196	0014		260	0047		324	-0189		388	-0023	
197	-0012		261	0047		325	-0193		389	-0019	
198	0033		262	0031		326	-0153		390	0014	
199	0131		263	0028		327	-0095		391	0060	
200	0247		264	0036		328	-0012		392	0093	
201	0335		265	0072		329	0033		393	0117	
202	0348		266	0125		330	0069		394	0137	
203	0314		267	0188		331	0064		395	0123	
204	0239		268	0216		332	0000		396	0098	
205	0161	9-0	269	0189	12-0	333	-0074	15-0	397	0075	
206	0124		270	0119		334	-0147		398	0055	
207	0139		271	0031		335	-0164		399	0062	
208	0218		272	-0026		336	-0142		400	0087	
209	0328		273	-0059		337	-0067		401	0113	
210	0405		274	-0052		338	-0001		402	0126	
211	0426		275	-0009		339	0057		403	0139	
212	0403		276	0039		340	0080		404	0119	
213	0314		277	0081		341	0040		405	0080	
214	0191		278	0107		342	-0010		406	0023	
215	0088		279	0079	17-0	343	-0096		407	-0043	
216	0025		280	0023		344	-0148		408	-0099	
217	0030		281	-0044		345	-0164		409	-0121	
218	0087		282	-0121		346	-0134		410	-0090	
219	0173		283	-0168		347	-0060		411	-0009	
220	0240		284	-0172		348	0038		412	0072	
221	0274		285	-0147		349	0136		413	0120	
222	0250		286	-0119		350	0195		414	0111	
223	0182		287	-0114		351	0170		415	0049	
224	0077		288	-0155		352	0077		416	-0021	
225	-0019	12-0	289	-0217		353	-0067	14-0	417	-0098	
226	-0075		290	-0287		354	-0212		418	-0136	
227	-0061		291	-0243		355	-0321		419	-0117	
228	-0033		292	-0341		356	-0356		420	-0072	
229	0011		293	-0289		357	-0339		421	-0020	
230	0042		294	-0217		358	-0277		422	0038	
231	0025		295	-0157		359	-0189		423	0061	
232	-0021		296	-0150		360	-0119		424	0026	
233	-0078		297	-0193		361	-0100		425	-0016	
234	-0142		298	-0248		362	-0124		426	-0090	
235	-0197	15-0	299	-0319	13-0	363	-0170	15-0	427	-0151	17-0
236	-0225		300	-0371		364	-0193		428	-0171	
237	-0217		301	-0378		365	-0173		429	-0150	
238	-0196		302	-0354		366	-0105		430	-0080	
239	-0133		303	-0309		367	-0000		431	-0001	
240	-0038		304	-0264		368	0075		432	0064	
241	0052		305	-0241		369	0092		433	0113	
242	0128		306	-0236		370	0074		434	0109	
243	0168		307	-0264		371	0011		435	0089	
244	0164		308	-0262		372	-0049		436	0016	
245	0169	16-0	309	-0282	14-0	373	-0082	15-0	437	-0040	
246	0170		310	-0275		374	-0076		438	-0098	
247	0188		311	-0278		375	-0039		439	-0142	
248	0210		312	-0285		376	0010		440	-0147	

PS No	a 10 ⁻⁴ m	t s	PS No	a 10 ⁻⁴ m	t s	PS No	a 10 ⁻⁴ m	t s	PS No	a 10 ⁻⁴ m	t s
441	-0.112	18.0	506	-0.027	21.0	571	0.089	23.0	636	-0.163	26.0
442	-0.028		507	-0.103		572	-0.004		637	-0.182	
443	0.058		508	-0.096		573	-0.075		638	-0.177	
444	0.118		509	-0.026		574	-0.099		639	-0.184	
445	0.124		510	0.062		575	-0.054		640	-0.201	
446	0.080		511	0.198		576	0.024		641	-0.199	
447	0.006		512	0.275		577	0.126		642	-0.187	
448	-0.052		513	0.293		578	0.203		643	-0.145	
449	-0.068		514	0.244		579	0.223		644	-0.092	
450	-0.050		515	0.149		580	0.200		645	-0.040	
451	-0.000		516	0.056		581	0.113		646	0.017	
452	0.063		517	0.005		582	0.026		647	0.044	
453	0.129		518	-0.001		583	-0.008		648	0.061	
454	0.155		519	0.023		584	-0.003		649	0.029	
455	0.156		520	0.035		585	0.057	24.0	650	-0.018	
456	0.111		521	0.063		586	0.149		651	-0.078	
457	0.069		522	0.034		587	0.236		652	-0.129	
458	0.049		523	-0.009		588	0.290		653	-0.135	
459	0.036		524	-0.074		589	0.299		654	-0.110	
460	0.056		525	-0.154		590	0.244		655	-0.039	
461	0.100		526	-0.203		591	0.192		656	0.008	
462	0.143		527	-0.204		592	0.145		657	0.019	
463	0.178		528	-0.167		593	0.095		658	-0.033	
464	0.193		529	-0.119		594	0.090		659	-0.102	
465	0.178	19.0	530	-0.077	22.0	595	0.111	25.0	660	-0.194	
466	0.136		531	-0.068		596	0.151		661	-0.264	
467	0.087		532	-0.094		597	0.186		662	-0.292	
468	0.050		533	-0.168		598	0.185		663	-0.261	
469	0.041		534	-0.254		599	0.165		664	-0.210	
470	0.067		535	-0.337		600	0.120		665	-0.147	
471	0.117		536	-0.383		601	0.057		666	-0.092	
472	0.165		537	-0.400		602	0.008		667	-0.089	
473	0.188		538	-0.391		603	-0.022		668	-0.138	
474	0.178		539	-0.365		604	-0.044		669	-0.248	
475	0.171		540	-0.346		605	-0.062		670	-0.360	27.0
476	0.154		541	-0.342		606	-0.070		671	-0.455	
477	0.141		542	-0.372		607	-0.061		672	-0.497	
478	0.137		543	-0.398		608	-0.057		673	-0.473	
479	0.146		544	-0.431		609	-0.044		674	-0.393	
480	0.177		545	-0.464		610	-0.040		675	-0.294	
481	0.231		546	-0.459		611	-0.037		676	-0.230	
482	0.282		547	-0.425		612	-0.028		677	-0.214	
483	0.314		548	-0.354		613	-0.017		678	-0.241	
484	0.287		549	-0.259		614	-0.006		679	-0.294	
485	0.222	20.0	550	-0.187	22.0	615	0.011	25.0	680	-0.343	28.0
486	0.138		551	-0.174		616	0.032		681	-0.375	
487	0.050		552	-0.182		617	0.045		682	-0.379	
488	-0.003		553	-0.211		618	0.050		683	-0.349	
489	0.001		554	-0.241		619	0.039		684	-0.276	
490	0.041		555	-0.228		620	0.036		685	-0.202	
491	0.095		556	-0.192		621	0.027		686	-0.136	
492	0.124		557	-0.131		622	0.025		687	-0.099	
493	0.112		558	-0.066		623	0.006		688	-0.101	
494	0.060		559	-0.050		624	0.000		689	-0.139	
495	-0.022		560	-0.065		625	-0.012		690	-0.196	
496	-0.112		561	-0.117		626	-0.040		691	-0.246	
497	-0.161		562	-0.164		627	-0.047		692	-0.256	
498	-0.153		563	-0.191		628	-0.058		693	-0.234	
499	-0.087		564	-0.165		629	-0.070		694	-0.156	
500	0.030		565	-0.109		630	-0.076		695	-0.078	
501	0.127		566	-0.025		631	-0.098		696	0.015	
502	0.197		567	0.081		632	-0.103		697	0.083	
503	0.203		568	0.163		633	-0.127		698	0.118	
504	0.147		569	0.191		634	-0.158		699	0.080	
505	0.060		570	0.164		635	-0.158		700	0.000	

Test stand (2.5.3.1)

 625 ± 50

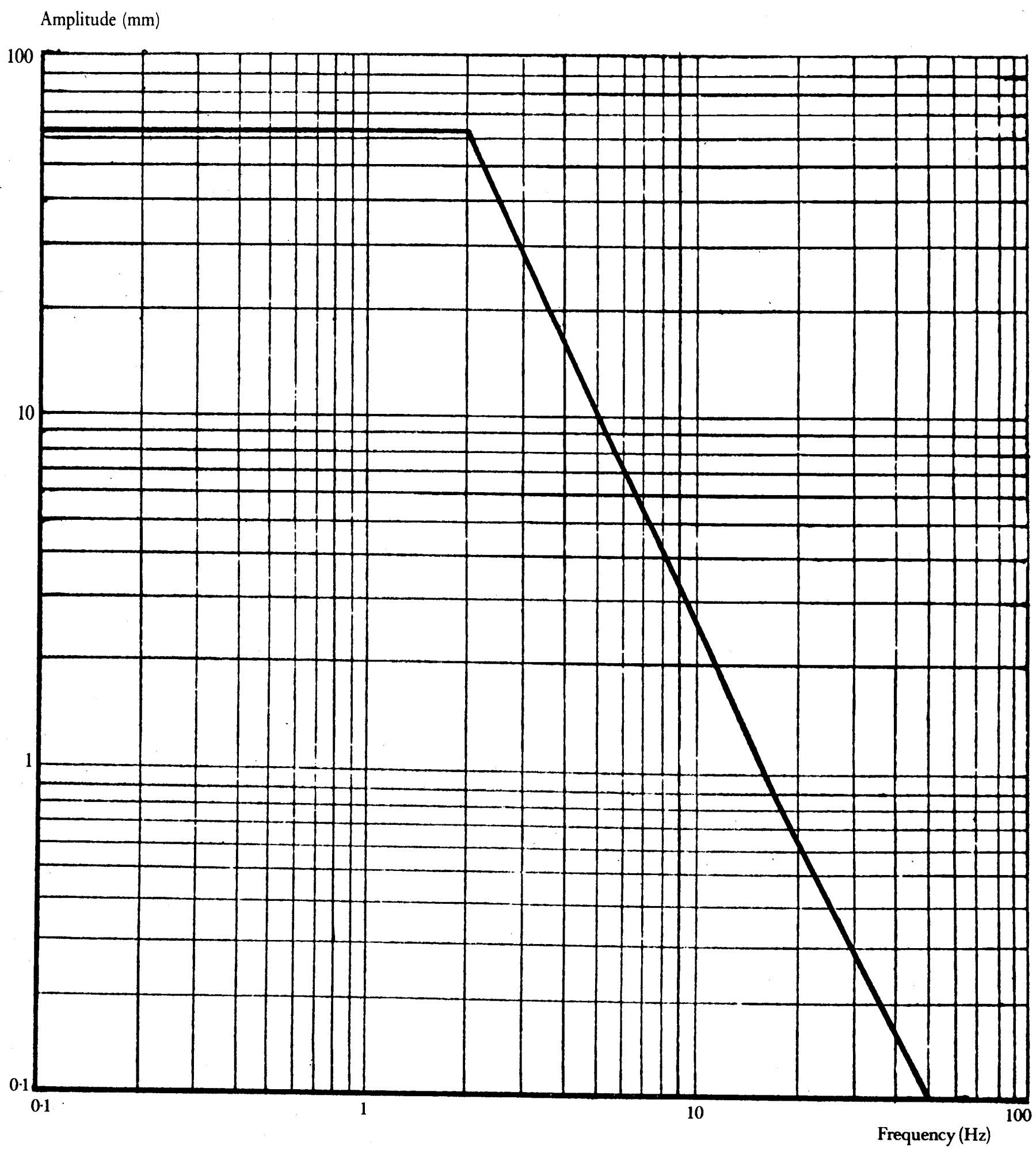
A ± 20	B ± 20
265	985
285	960
305	935
325	895
345	855
365	835
385	825
405	805
425	785
445	765
465	745
485	725



- (1) The angle of the steering column in relation to the vertical depends on the position of the seat, the diameter of the steering wheel.
- (2) The rearward inclination of the surface of the fitted seat cushion must be 3 to 12° in relation to the horizontal when measured with the loading device in accordance with Appendix 1 to Annex II. The choice of the angle of inclination within this class depends on the position when seated.

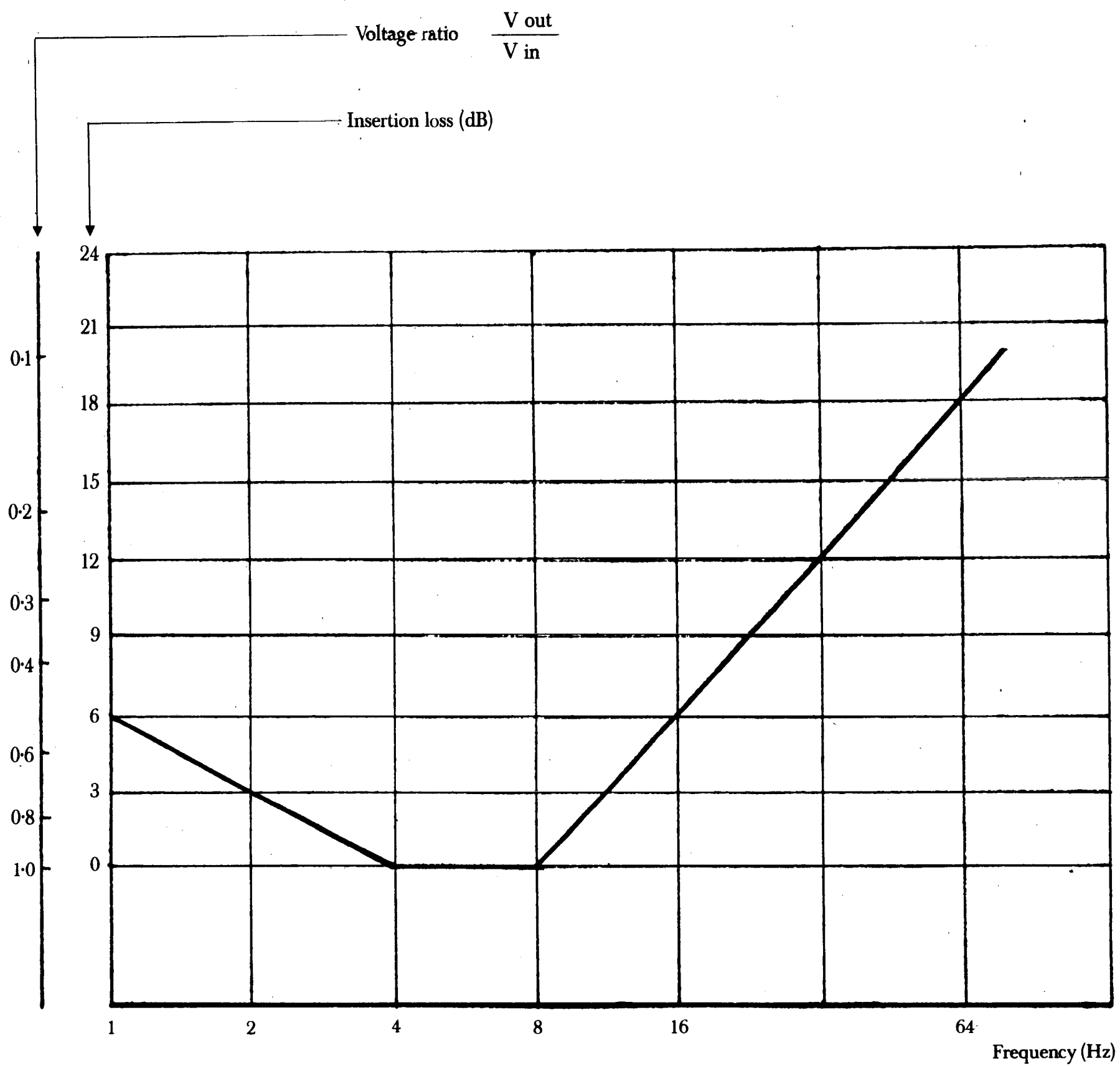
Appendix 7

Travel of the vibration test stand (2.5.3.1)



Appendix 8

Characteristic of the filter of the vibration measuring instrument (2.5.3.3.5)



Appendix 9

Spectral power density of the vertical vibration acceleration at the seat attachment of the Class I reference tractor (2.5.5)

The spectral power density of the vertical vibration acceleration at the seat attachment of the Class I reference tractor can be approximately expressed by the following relation:

$$\Phi = \Phi_{\max} \exp - \frac{(f - f_m)^2}{2b^2}$$

where the constants have the values:

$$\Phi_{\max} = 6.0 \text{ (m/s}^2\text{)}^2/\text{Hz}$$

$$f_m = 3.25 \text{ Hz}$$

$$b = 0.33 \text{ Hz}$$

The permitted tolerances are:

$$\Phi_{\max} = \pm 10 \%$$

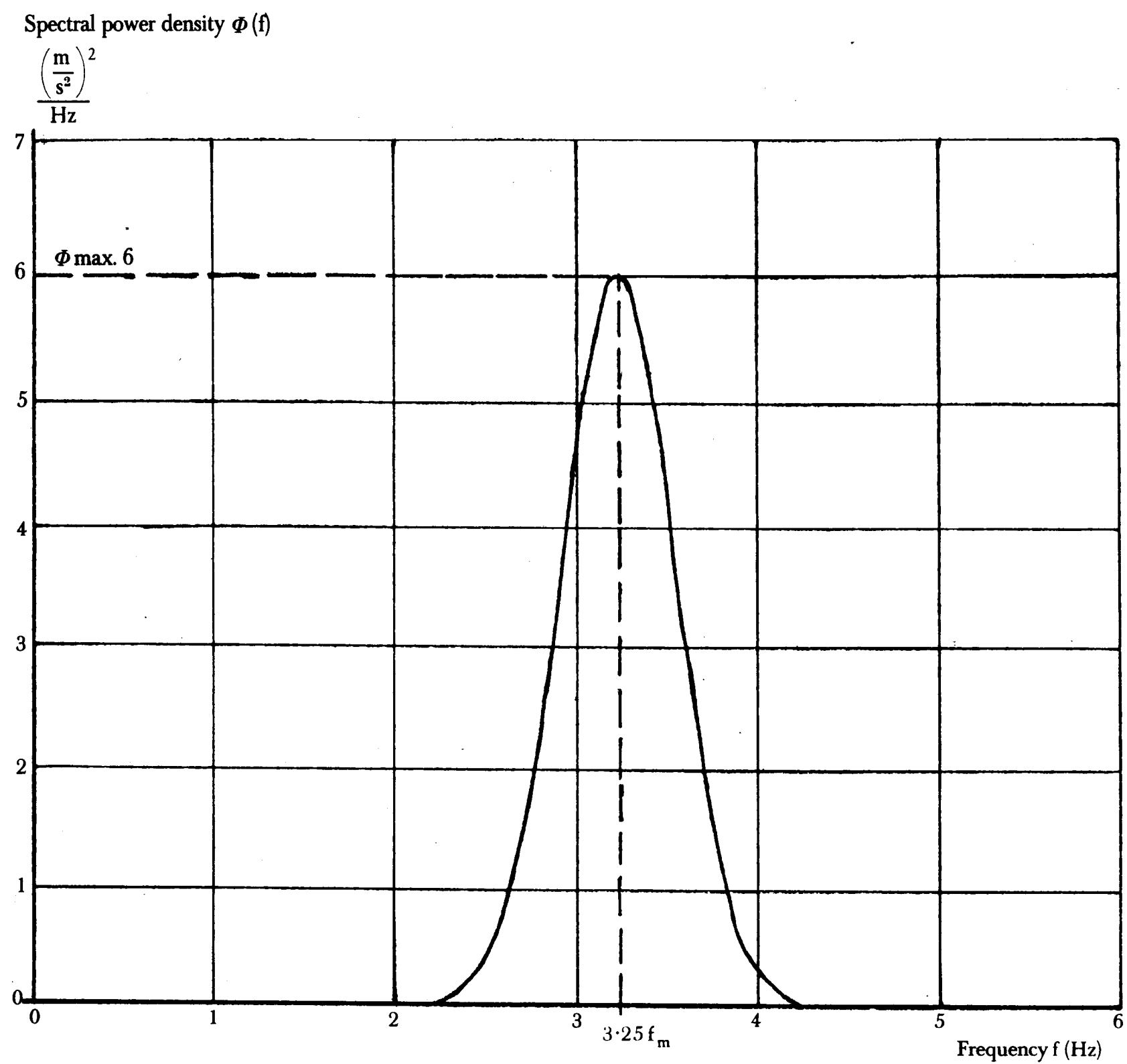
$$f_m = \pm 5 \%$$

The tolerance with respect to b is determined by the fact that, in accordance with 2.5.5.2, the weighted vibration acceleration at the seat attachment must be within the limits:

$$a_w = 1.9 \text{ to } 2.2 \text{ m/s}^2$$

Spectral power density $\Phi(f)$

Approximate function for the spectral power density of the vertical vibration acceleration at the seat attachment of the Class I reference tractor



*Appendix 10***Spectral power density of the vertical vibration acceleration at the seat attachment of the Class II reference tractor (2.5.5)**

The spectral power density of the vertical vibration acceleration at the seat attachment of the Class II reference tractor can be approximately described by the following relation:

$$\Phi = \Phi_{\max} \exp - \frac{(f - f_m)^2}{2b^2}$$

where the constants have the values:

$$\Phi_{\max} = 5.5(\text{m/s}^2)^2/\text{Hz}$$

$$f_m = 2.65 \text{ Hz}$$

$$b = 0.3 \text{ Hz}$$

The permitted tolerances are:

$$\Phi_{\max} = \pm 10 \%$$

$$f_m = \pm 5 \%$$

The tolerance with respect to b is determined by the fact that, in accordance with 2.5.5.2, the weighted vibration acceleration at the seat attachment must be within the limits:

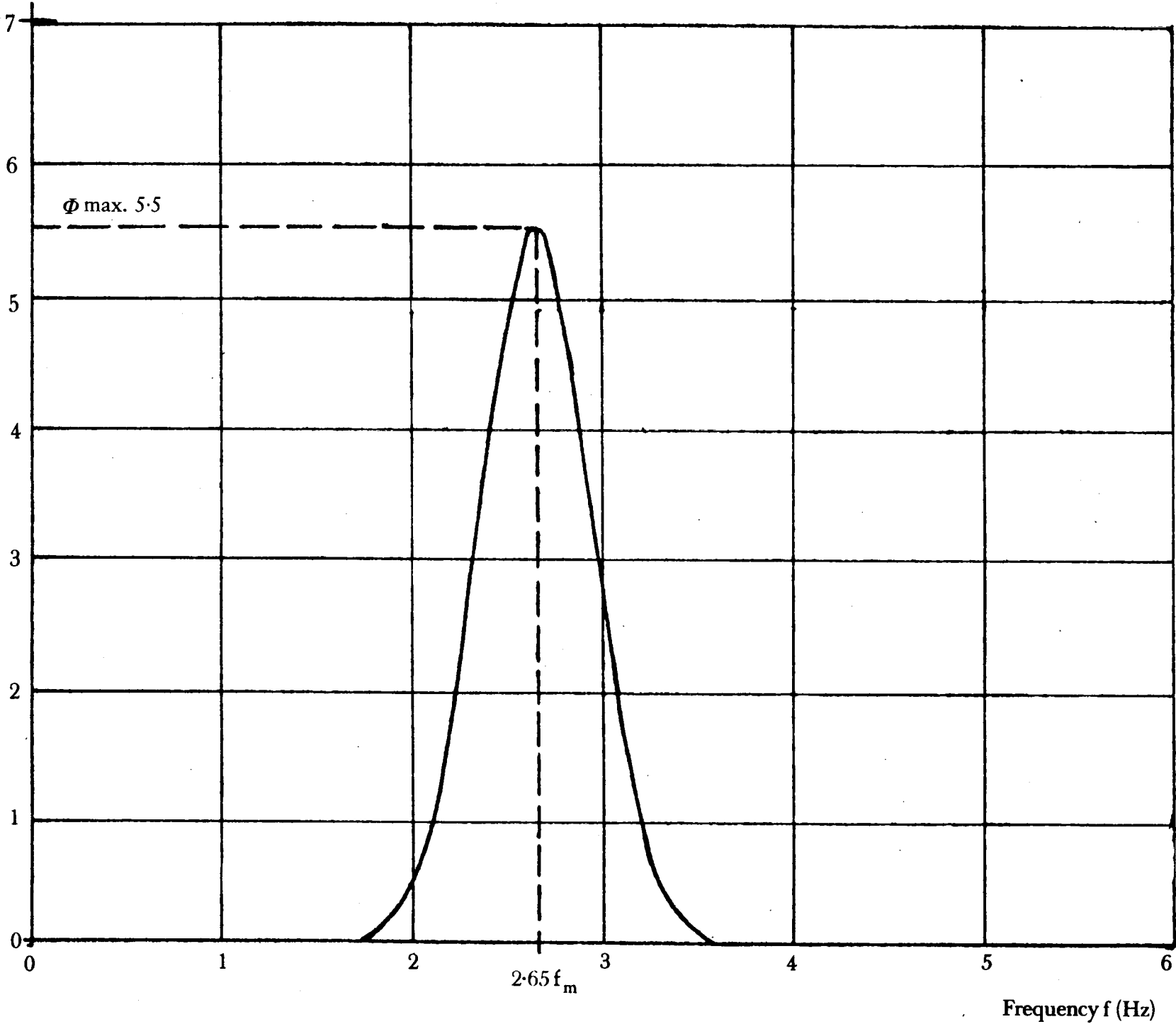
$$a_w = 1.6 \text{ to } 1.8 \text{ m/s}^2$$

Spectral power density $\Phi(f)$

Approximate function for the spectral power density of the vertical vibration acceleration at the seat attachment of the Class II reference tractor

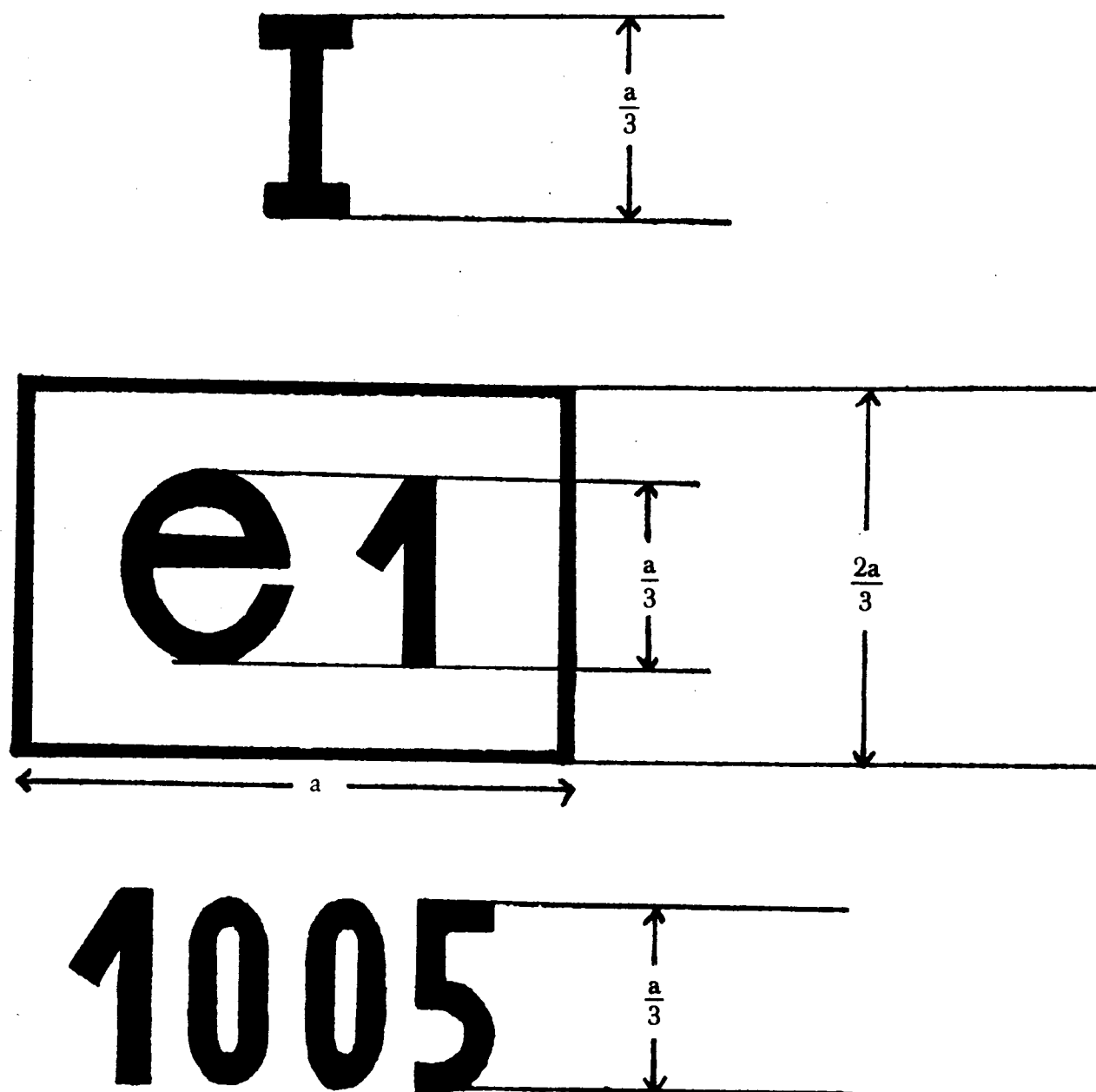
Spectral power density $\Phi(f)$

$\frac{\left(\frac{\text{m}}{\text{s}^2}\right)^2}{\text{Hz}}$



Appendix 11

Example of an EEC component type-approval mark (3.5)

 $a \geq 15 \text{ mm}$ 

The seat bearing the EEC type-approval mark above is a seat intended for a Category A tractor in Class I and approved in Germany (e1) under number 1 005.

ANNEX III

MODEL EEC COMPONENT TYPE-APPROVAL CERTIFICATE

Name of
administration

Notification concerning the grant, refusal, withdrawal or extension of EEC component type-approval
for a type of driver's seat for a wheeled agricultural or forestry tractor

- EEC component type-approval No
1. Trade name or mark of seat
.....
2. Name and address of seat manufacturer
.....
3. If applicable, name and address of manufacturer's authorized representative
.....
4. Mark, type and trade name of tractor(s) for which seat is intended ⁽¹⁾
.....
5. Date of submission for EEC component type-approval
6. Test laboratory
.....
7. Date and number of laboratory report
8. Date on which EEC component type-approval was granted/refused/withdrawn ⁽²⁾
.....
9. Place
10. Date
11. A note describing the seat, particularly the range of adjustment, the total weight, the suspension system characteristics, type and thickness of padding and directions for attachment, is attached to this certificate. Designs of the sides of the seat in DIN A4 form (210 × 297 mm) with a lateral and frontal view are enclosed with this note.
12. Remarks
.....
13. Signature

⁽¹⁾ In the case of a seat intended for a tractor in Class I or II, state the class(es) of the tractor(s) for which the seat is intended.
⁽²⁾ Delete whichever is inapplicable.

ANNEX IV

DRIVER'S SEAT INSTALLATION REQUIREMENTS FOR EEC TYPE-APPROVAL OF A TRACTOR

1. Every driver's seat must bear the EEC component type-approval mark and comply with the following installation requirements:
 - 1.1. the driver's seat must be installed in such a way that:
 - 1.1.1. the driver is assured of a comfortable position for driving and manoeuvring the tractor;
 - 1.1.2. the seat is easily accessible;
 - 1.1.3. the driver, when seated in the normal driving position, can easily reach the various controls of the tractor that are likely to be actuated during operation;
 - 1.1.4. no part of any of the seat or tractor components is likely to cause the driver to suffer cuts or bruises;
 - 1.1.5. where the seat is adjustable only in length or height, its plane of symmetry must coincide or be parallel with the median longitudinal plane of the tractor;
 - 1.1.6. where the seat is designed to revolve round a vertical axis it must be capable of being locked in all or certain positions and in any case in the position mentioned in 1.1.5.
 2. The holder of the EEC type-approval may request that it be extended to other types of seat. The competent authorities must grant this extension on the following conditions:
 - 2.1. the new type of seat has received EEC component type-approval;
 - 2.2. it has been designed to be installed on the type of tractor for which the extension of the EEC type-approval has been requested;
 - 2.3. it is installed in such a manner as to comply with the installation requirements in this Annex.
3. Seats intended for tractors with a rear wheel track of 1 150 mm may have the following minimum dimensions with respect to the depth and width of the seat surface:
 - depth of seat surface: 300 mm,
 - width of seat surface: 400 mm.

This provision is applicable only if the values specified for the depth and the width of the seat surface (i.e. 400 ± 50 mm and at least 450 mm respectively) cannot be observed on grounds relating to the construction of the tractor.

4. A certificate conforming to the model shown in Annex V is to be attached to the EEC type-approval certificate for each type-approval or extension of type-approval granted or refused.

ANNEX V

ANNEX TO THE EEC TYPE-APPROVAL CERTIFICATE FOR A TRACTOR WITH REGARD TO THE DRIVER'S SEAT

(Articles 4 (2) and 10 of Council Directive 74/150/EEC of 4 March 1974 on the approximation of the laws of the Member States relating to the type-approval of wheeled agricultural or forestry tractors)

Name of
administration

EEC type-approval No
..... extension ⁽¹⁾

1. Trade name or mark of tractor
.....

2. Type of tractor

3. Name and address of tractor manufacturer
.....

4. If applicable, name and address of authorized representative
.....

5. Trade name or mark of driver's seat and component type-approval number
.....

6. Extension of EEC type-approval of the tractor to cover the following seat type
.....

7. Tractor submitted for EEC type-approval on

8. Technical department responsible for checking conformity for the purpose of EEC type-approval
.....

9. Date of report issued by that department

10. Number of report issued by that department

11. EEC type-approval with respect to the driver's seat has been granted/refused ⁽²⁾

12. An extension of EEC type-approval with respect to the driver's seat has been granted/refused ⁽²⁾

13. Place

14. Date

15. Signature

⁽¹⁾ Where appropriate, state whether the extension of the initial EEC type-approval is the first, second, etc.
⁽²⁾ Delete whichever is inapplicable.