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COUNCIL DIRECTIVE

of 6 February 1970

on the approximation of the laws of the Member States relating to the permissible sound level and the exhaust system of motor vehicles

(70/157/EEC)

(OJ L 42, 23.2.1970, p. 16)

Amended by:

	Official Journal		
	No	page	date
► <u>M1</u> Commission Directive 73/350/EEC of 7 November 1973	L 321	33	22.11.1973

Amended by:

► <u>A1</u> Act of Accession of Denmark, Ireland and the United Kingdom of Great Britain and Northern Ireland	L 73	14	27.3.1972
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**B****COUNCIL DIRECTIVE****of 6 February 1970****on the approximation of the laws of the Member States relating to the permissible sound level and the exhaust system of motor vehicles**

(70/157/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 motor vehicles must satisfy pursuant to national laws relate, *inter alia*, to the permissible sound level and the exhaust system;Whereas those 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 the Council Directive⁽³⁾ of 6 February 1970 on the approximation of the laws of the Member States relating to the type approval of motor vehicles and their trailers to be applied in respect of each type of vehicle;

HAS ADOPTED THIS DIRECTIVE:

Article 1

For the purposes of this Directive, 'vehicle' means any motor vehicle intended for use on the road, with or without bodywork, having at least four wheels and a maximum design speed exceeding 25 kilometres per hour, with the exception of vehicles which run on rails, agricultural tractors and machinery and public works vehicles.

Article 2

No Member State may refuse to grant EEC type approval or national type approval of a vehicle on grounds relating to the permissible sound level or the exhaust system if its sound level and exhaust system satisfy the requirements set out in the Annex.

**A1***Article 2a*

No Member State may refuse or prohibit the sale or registration, entry into service or use of a vehicle on grounds relating to the permissible sound level or the exhaust system if its sound level and exhaust system satisfy the requirements set out in the Annex.

(1) OJ No C 160, 18.12.1969, p. 7.

(2) OJ No C 48, 16.4.1969, p. 16.

(3) OJ No L 42, 23.2.1970, p. 1.

▼B*Article 3*

The amendments necessary for adjusting the requirements of the Annex so as to take account of technical progress, with the exception of the requirements set out under items 1.1 and 1.4.1.4, shall be adopted in accordance with the procedure laid down in Article 13 of the Council Directive on the type approval of motor vehicles and their trailers.

Article 4

1. Member States shall put into force the provisions containing the requirements needed in order to comply with this Directive within eighteen 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 5

This Directive is addressed to the Member States.



ANNEX

I. PERMISSIBLE SOUND LEVELS

I.1. Limits

The sound level of the vehicles referred to in Article 1 of this Directive, when measured under the conditions set out in this Annex, may not exceed the following levels:

	Vehicle category	Value expressed in dB (A) (decibels (A))
I.1.1.	Vehicles intended for the carriage of passengers and comprising not more than nine seats including the driver's seat.	82
I.1.2.	Vehicles intended for the carriage of passengers, comprising more than nine seats including the driver's seat, and having a permissible maximum weight not exceeding 3.5 metric tons.	84
I.1.3.	Vehicles intended for the carriage of goods and having a permissible maximum weight not exceeding 3.5 metric tons.	84
I.1.4.	Vehicles intended for the carriage of passengers, comprising more than nine seats including the driver's seat, and having a permissible maximum weight exceeding 3.5 metric tons.	89
I.1.5.	Vehicles intended for the carriage of goods and having a permissible maximum weight exceeding 3.5 metric tons.	89
I.1.6.	Vehicles intended for the carriage of passengers, comprising more than nine seats including the driver's seat, and having an engine power equal to or exceeding 200 HP DIN.	91
I.1.7.	Vehicles intended for the carriage of goods or materials, having an engine power equal to or exceeding 200 HP DIN and a permissible maximum weight exceeding 12 metric tons.	91

I.2. Measuring instruments

The noise emitted by vehicles shall be measured by means of a sound-level meter of the type described in Publications 179, 1st edition (1965), of the International Electrotechnical Commission.

I.3. Conditions of measurement

Measurements shall be made on unladen vehicles in a sufficiently silent and open area (ambient noise and wind noise at least 10 dB (A) below the noise being measured).

That area may take the form, for instance, of an open space of 50-metre radius having a central part of at least 20-metre radius which is practically level, surfaced with concrete, asphalt or similar material, and not covered with powdery snow, tall grass, loose soil or ashes.

The surface of the test track shall be such as not to cause excessive tyre noise. This condition applies only to measurement of the noise made by vehicles in motion.

Measurement shall be carried out in fine weather with little wind. No person other than the observer taking the readings from the apparatus may remain near the vehicle or the microphone, as the presence of spectators near either the vehicle or the microphone may considerably affect the readings from the apparatus. Marked fluctuations of the pointer which appear to be unrelated to the characteristics of the general sound level shall be ignored in taking readings.

I.4. Method of measurement

I.4.1. *Measurement of noise of vehicles in motion (for type approval)*

At least two measurements shall be made on each side of the vehicle. Preliminary measurements may be made for adjustment purposes but shall be disregarded.

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The microphone shall be situated 1·2 metres above ground level at a distance of 7·5 metres from the path of the vehicle's centre line, CC, measured along the perpendicular PP' to that line (Figure 1).

Two lines AA' and BB', parallel to line PP' and situated respectively 10 metres forward and 10 metres rearward of that line, shall be marked out on the test track. Vehicles shall approach line AA' at a steady speed, as specified below. The throttle shall then be fully-opened as rapidly as practicable and held in the fully-opened position until the rear of the vehicle⁽¹⁾ crosses line BB'; the throttle shall then be closed again as rapidly as possible.

The maximum sound level recorded shall constitute the result of the measurement.

I.4.1.1. *Vehicles with no gearbox*

The vehicle shall approach line AA' at a steady speed corresponding to the lowest of the three following speeds:

- an engine speed equal to three-quarters of the engine speed at which the engine develops its maximum power;
- an engine speed equal to three-quarters of the maximum engine speed permitted by the governor;
- 50 kilometres per hour.

I.4.1.2. *Vehicles with a manually operated gearbox*

I.4.1.2.1. — The second gear in the gearbox must be engaged if the vehicle is fitted with a two-speed, three-speed or four-speed gearbox;

I.4.1.2.2. — The third gear in the gearbox must be engaged if the box has more than four gears;

I.4.1.2.3. — if the transmission has a double gear ratio (transfer gearbox or two-speed rear axle assembly), the gearbox must be engaged in the ratio allowing the highest vehicle speed.

The vehicle shall approach line AA' at a steady speed corresponding to the lowest of the following three speeds:

- an engine speed equal to three-quarters of the engine speed at which the engine develops its maximum power;
- an engine speed equal to three-quarters of the maximum engine speed permitted by the governor;
- 50 kilometres per hour.

I.4.1.3. *Vehicles with an automatic gearbox*

The vehicle shall approach line AA' at a steady speed equal to the lowest of the following two speeds:

- 50 kilometres per hour;
- three quarters of the maximum speed.

Where there is a choice, the 'normal' selector position for town driving is to be used.

⁽¹⁾ If the vehicle includes a trailer or semi-trailer, these shall not be taken into account in determining when line BB' is crossed.

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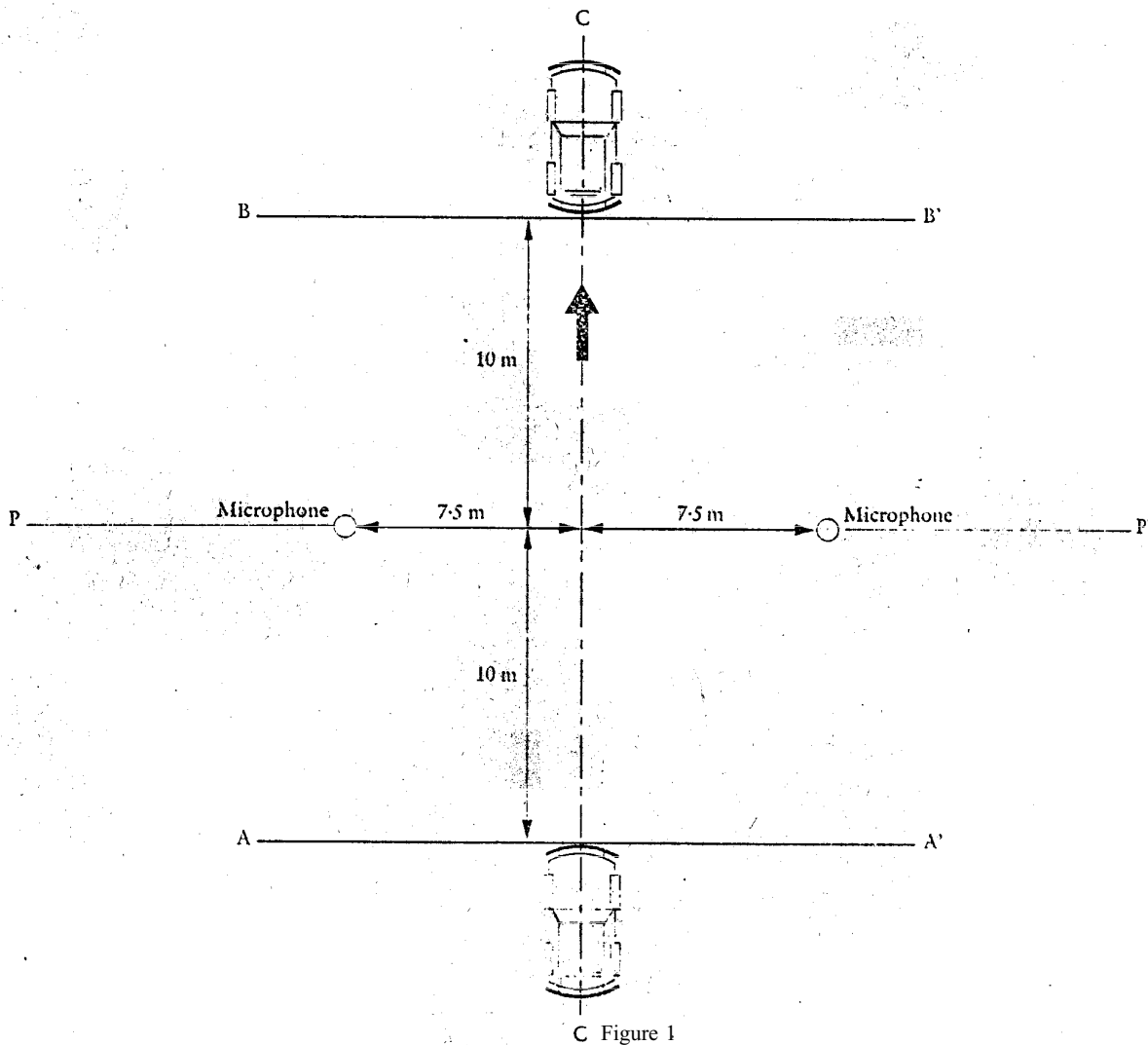
I.4.1.4. Interpretation of results

I.4.1.4.1. To take account of inaccuracies in the measuring instruments, the result obtained from each measurement shall be determined by deducting 1 dB (A) from the meter reading.

I.4.1.4.2. The measurements shall be considered valid if the difference between two consecutive measurements on the same side of the vehicle does not exceed 2 dB (A).

I.4.1.4.3. The highest sound level measured shall constitute the test result. Should that result exceed by 1 dB (A) the maximum permissible sound level for the category of vehicle tested, two further measurements shall be made. Three of the four measurements thus obtained must fall within the prescribed limits.

Measuring positions for vehicles in motion



I.4.2. Measurement of noise of stationary vehicles

I.4.2.1. Position of sound-level meter

Measurements shall be made at point X (shown in Figure 2) at a distance of 7 metres from the nearest surface of the vehicle.

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The microphone shall be situated 1.2 metres above ground level.

I.4.2.2. *Number of measurements*

At least two measurements shall be made.

I.4.2.3. *Vehicle test conditions*

The engine of a vehicle without a speed governor shall be run at three-quarters of the rpm speed at which, according to the vehicle manufacturer, it develops its maximum power. The rpm speed of the engine shall be measured by means of an independent instrument, e.g. a roller bed and a tachometer. If the engine is fitted with a governor preventing the engine from exceeding the speed at which it develops its maximum power, it shall be run at the maximum speed permitted by the governor.

Before taking any measurements, the engine shall be brought to its normal running temperature.

I.4.2.4. *Interpretation of results*

All sound-level readings recorded shall be given in the report.

The method used to calculate the engine power shall also be shown, where possible. The state of loading of the vehicle must also be given.

The measurements shall be considered valid if the difference between two consecutive measurements on the same side of the vehicle does not exceed 2 dB (A).

The maximum figure recorded shall constitute the result of the measurement.

Measuring positions for stationary vehicles

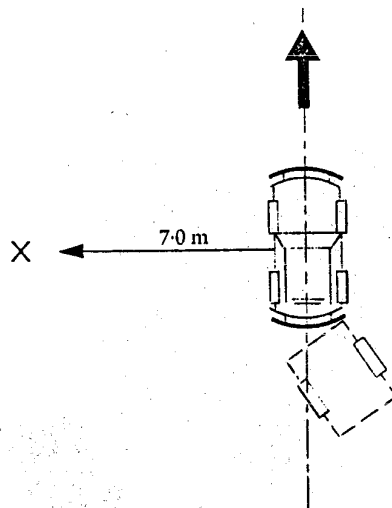


Figure 2

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II. EXHAUST SYSTEM (SILENCERS)

II.1. If a vehicle is fitted with devices designed to reduce exhaust noise (silencers), the requirements contained in this heading II shall be met. If the engine air intake is fitted with an air filter which is necessary in order to conform to the permissible noise level, this filter shall be considered to form part of the silencer and the requirements of this heading II shall also apply to this filter.

II.2. A diagram of the exhaust system shall be appended to the type-approval certificate for the vehicle.

II.3. The silencer shall bear a clearly legible, indelible indication of its mark and type.

II.4. Fibrous absorbing materials shall not be used in the construction of silencers unless suitable measures are undertaken at the design or production stages to ensure that the efficiency to comply with the limits imposed in Heading I is achieved on the road. Such a silencer shall be considered to be efficient on the road if:

II.4.1. the silencer on the prototype vehicle tested in accordance with the requirements of items 1.3 and 1.4 has been put into a normal state for road use before the noise level measurements are taken.

This can be carried out:

II.4.1.1. by continuous operation on the road for 10 000 km;

II.4.1.1.1. about one half of this operation shall consist in town driving and the other half in long-distance runs at high speed; the continuous operation on the road may be replaced by a corresponding programme of track tests;

II.4.1.1.2. Care must be taken to alternate several times between the two ranges of road speed;

II.4.1.1.3. The complete test programme must include a minimum of 10 breaks of at least three hours' duration in order to reproduce the effects of cooling and of any condensation which may occur;

II.4.1.2. or by bench tests under the following conditions:

II.4.1.2.1. using standard parts and observing the vehicle manufacturer's instructions, the silencer shall be fitted to the engine, which itself is coupled to a dynamometer;

II.4.1.2.2. The tests shall be performed in six six-hours periods with a break of at least 12 hours between each period in order to reproduce the effects of cooling and of any condensation which may occur;

II.4.1.2.3. During each six-hours period the engine shall be run successively under the following conditions:

1. five-minute sequence at idling speed;
2. one-hour sequence under 1/4 load at 3/4 of the peak power speed;
3. one-hour sequence under 1/2 load at 3/4 of the peak power speed;
4. ten-minute sequence under full load at 3/4 of the peak power speed;
5. fifteen-minute sequence under 1/2 load at peak power speed;
6. thirty-minute sequence under 1/4 load at peak power speed;

The phrase 'peak power speed' means that to be quoted by the manufacturer.

Total length of the 6 sequences: 3 hours.

Each period shall comprise two sets of the six sequences above;

II.4.1.2.4. During the tests the silencer shall not be cooled by any forced draught simulating the slipstream about the vehicle.

Nevertheless cooling may be authorized at the request of the manufacturer in order not to exceed the temperature recorded at the silencer inlet when the vehicle is travelling at maximum speed;

II.4.1.3. or by the removal of the fibrous matter from the silencer.

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- II.4.1.4. After the conditioning of the silencer as described under Item II.4.1, the noise measurement shall be carried out in conformity with the requirements of Item I.4.1, above. The measured noise level shall not exceed that laid down in Item I.1 for the category to which the vehicle belongs.
- II.5. In cases where Article 8 (3) of the Council Directive concerning 'type-approval' must be applied, the method of testing specified in Item II.4.1.2 above shall be the valid method.
- II.6. Suitable attachments shall ensure that the fibrous absorbing materials remain in position throughout the operating life of the silencer.