

## II

(Acts whose publication is not obligatory)

## COUNCIL

## COUNCIL DIRECTIVE

of 28 May 1974

adapting to technical progress Council Directive No 70/220/EEC on the approximation of the laws of the Member States relating to measures to be taken against air pollution by gases from positive-ignition engines of motor vehicles

(74/290/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community;

Having regard to the proposal from the Commission;

Having regard to Council Directive No 70/156/EEC<sup>(1)</sup> 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, as amended by the Act of Accession<sup>(2)</sup> and in particular Articles 11, 12 and 13 thereof;

Having regard to Council Directive No 70/220/EEC<sup>(3)</sup> of 20 March 1970 on the approximation of the laws of the Member States relating to measures to be taken against air pollution by gases from positive-ignition engines of motor vehicles as amended by the Act of Accession, and in particular Article 5 thereof;

Whereas the protection of the public against increasing atmospheric pollution, particularly in towns, necessitates active measures for reducing the amount of gaseous pollutants emitted from

positive-ignition engines designed to propel vehicles; whereas such a reduction in the admissible level of emission is made possible by the progress which has been made in the construction of such engines;

Whereas, in future, such engines must be fitted with carburettors which will permit the specified levels of emission to be complied with while the engines idle in all settings of the controls at the disposal of the user;

Whereas the application of the present provisions of Directive No 70/220/EEC has shown that these provisions require amendment in order to facilitate performance of the present tests by the competent authorities;

Whereas certain amendments are also required to simplify the administrative procedure for the type-approval of a motor vehicle as regards the emission of pollutants, in order in particular to allow the extension of type-approval to include vehicle types which, in weight and/or gear ratios, differ from the originally approved type;

Whereas, on 10 October 1973, the Commission submitted a proposed amendment to the Committee on the Adaption to Technical Progress of the Directives on the Removal of Technical Barriers to Trade in the Motor Vehicle Sector for its Opinion;

<sup>(1)</sup> OJ No L 42, 23. 2. 1970, p. 1.

<sup>(2)</sup> OJ No L 73, 27. 3. 1972, p. 14.

<sup>(3)</sup> OJ No L 76, 6. 4. 1970, p. 1.

whereas that Opinion was not favourable and the Commission, in accordance with the procedure laid down in Article 13 (3) (b) of Directive No 70/156/EEC proposed to the Council measures to be adopted,

HAS ADOPTED THIS DIRECTIVE:

#### *Article 1*

Annexes I to V to Directive No 70/220/EEC are hereby amended in accordance with the Annex to the present Directive.

#### *Article 2*

1. From 1 January 1975, the Member States shall neither, on grounds relating to air pollution by gases from an engine:

- refuse to grant EEC type-approval, or to issue the documents referred to in the second indent of Article 10 (1) of Directive No 70/156/EEC, or to grant national type-approval of a type of motor vehicle;
- nor prohibit the entry into service of such vehicles;

where the level of gaseous pollutants emitted from this type of motor vehicle or from such vehicles meets the requirements of Directive No 70/220/EEC, as amended by the present Directive.

2. From 1 October 1975, Member States:

- shall no longer issue the document provided for in the second indent of Article 10 (1) of Directive No 70/156/EEC in respect of a type of motor vehicle which emits gaseous pollutants at levels which do not meet the requirements of Directive No 70/220/EEC, as amended by this Directive as regards Annex I (with the exception of item 3.2.1.2.2), Annex II, Annex IV item 1.2, and Annex V;
- may refuse national type-approval of a type of motor vehicle which emits gaseous pollutants at levels which do not meet the requirements of Directive No 70/220/EEC, as amended by this Directive, as regards Annex I (with the exception of item 3.2.1.2.2), Annex II, Annex IV item 1.2, and Annex V;

- may prohibit the entry into service of vehicles which emit gaseous pollutants at levels which do not meet the requirements of Directive No 70/220/EEC, as amended by this Directive, as regards Annex I (with the exception of item 3.2.1.2.2), Annex II, Annex IV item 1.2, and Annex V.

3. From 1 October 1976, Member States:

- shall no longer issue the document provided for in the second indent of Article 10 (1) of Directive No 70/156/EEC in respect of a type of motor vehicle which emits gaseous pollutants at levels which do not meet the requirements of Directive No 70/220/EEC, as amended by this Directive, as regards Annex I item 3.2.1.2.2 and Annex IV item 1.5;
- may refuse to grant national type-approval of a type of motor vehicle which emits gaseous pollutants at levels which do not meet the requirements of Directive No 70/220/EEC, as amended by this Directive, as regards Annex I item 3.2.1.2.2, and Annex IV item 1.5;
- may prohibit the entry into service of vehicles which emit gaseous pollutants at levels which do not meet the requirements of Directive No 70/220/EEC, as amended by this Directive, as regards Annex I item 3.2.1.2.2, and Annex IV item 1.5.

#### *Article 3*

By 1 October 1974, Member States shall put into force the requirements needed in order to comply with this Directive and shall forthwith inform the Commission thereof.

#### *Article 4*

This Directive is addressed to the Member States.

Done at Brussels, 28 May 1974.

*For the Council*

*The President*

H. D. GENSCHER

## ANNEX

## Amendments to the Annexes to Directive No 70/220/EEC

## ANNEX I: DEFINITIONS, APPLICATION FOR EEC TYPE-APPROVAL AND TEST SPECIFICATIONS

Item 3.2.1.1.4 shall read as follows:

3.2.1.1.4. Subject to the provisions of item 3.2.1.1.5 below, the test shall be performed three times. In each test, the mass of the carbon monoxide and the mass of the hydrocarbons obtained must be less, for a vehicle of given reference weight, than the amounts shown in the table below:

Reference weight (RW) in kg	Mass of carbon monoxide per test in g L <sub>1</sub>	Mass of hydrocarbons per test in g L <sub>2</sub>
RW ≤ 750	80	6.8
750 < RW ≤ 850	87	7.1
850 < RW ≤ 1 020	94	7.4
1 020 < RW ≤ 1 250	107	8.0
1 250 < RW ≤ 1 470	122	8.6
1 470 < RW ≤ 1 700	135	9.2
1 700 < RW ≤ 1 930	149	9.7
1 930 < RW ≤ 2 150	162	10.3
2 150 < RW	176	10.9

3.2.1.1.4.1. Nevertheless, for each of the pollutants referred to in 3.2.1.1.4, one of the three results obtained may exceed, by not more than 10%, the limit laid down in that item for the vehicle concerned, on condition that the arithmetic mean of the three results is below the prescribed limit. Where the prescribed limits are exceeded for more than one pollutant, it shall be immaterial whether this occurs in the same test or in different tests.

The following item 3.2.1.1.5 shall be inserted after 3.2.1.1.4:

3.2.1.1.5. The number of tests laid down in item 3.2.1.1.4 shall be reduced in the cases hereinafter defined, V<sub>1</sub> being the result of the first test and V<sub>2</sub> the result of the second test for any of the pollutants mentioned in item 3.2.1.1.4.

3.2.1.1.5.1. Only one test shall be made if, for both the pollutants concerned, V<sub>1</sub> ≤ 0.70 L.

3.2.1.1.5.2. Only two tests shall be made if, for both the pollutants concerned, V<sub>1</sub> ≤ 0.85 L but for at least one of the pollutants V<sub>1</sub> > 0.70 L. In addition, for each of the pollutants concerned, V<sub>2</sub> must satisfy the requirements V<sub>1</sub> + V<sub>2</sub> ≤ 1.70 L and V<sub>2</sub> ≤ L.

The following sentence shall be added to item 3.2.1.2.2:

'This requirement shall be checked in the manner specified in Annex IV, for all the possible permutations of the various setting controls available to the user.'

The following item 4 shall be inserted after item 3.2.1.3.3:

#### 4. EXTENSION OF EEC TYPE-APPROVAL

##### 4.1. Vehicle types of different reference weights

Approval of a vehicle type may, under the following conditions, be extended to vehicle types which differ from the approved type only in respect of their reference weight.

4.1.1. Approval may be extended to vehicle types of a reference weight requiring merely the use of the next higher or next lower equivalent inertia.

4.1.2. If the reference weight of the vehicle type for which extension of the approval is requested requires the use of a flywheel of equivalent inertia higher than that used for the vehicle type already approved, extension of the approval shall be granted.

4.1.3. If the reference weight of the vehicle type for which extension of the approval is requested requires the use of a flywheel of equivalent inertia lower than that used for the vehicle type already approved, extension of the approval shall be granted if the masses of the pollutants obtained from the vehicle already approved are within the limits prescribed for the vehicle for which extension of the approval is requested.

##### 4.2. Vehicle types with different overall gear rates

Approval granted in respect of one vehicle type may, under the following conditions, be extended to vehicle types which differ from the approved type only in respect of their overall transmission ratios:

4.2.1. For each transmission ratio used in the Type I test, the equation  $E = \frac{V_2 - V_1}{V_1}$  shall be determined where  $V_1$  and  $V_2$  are, respectively, the speed at 1000 rpm of the engine of the approved vehicle type and of the vehicle type for which extension of the approval is requested.

4.2.2. If for each gear ratio  $E \leq 5\%$ , extension shall be granted without repeating the Type I tests.

4.2.3. If for at least one gear ratio  $E > 5\%$ , and if for each gear ratio  $E \leq 10\%$ , the Type I tests shall be repeated but may be performed in a laboratory chosen by the manufacturer, subject to the agreement of the authorities competent to grant type-approval. The report on the tests shall be sent to the approved laboratory.

##### 4.3. Vehicle types of different reference weights and different overall transmission ratios

Approval granted in respect of one type of vehicle may be extended to vehicle types which differ from the approved type only in respect of their reference weights and their overall transmission ratios, where all the conditions laid down in items 4.1 and 4.2 above are fulfilled.

## 4.4. Note

When a vehicle type has been approved under the provisions of items 4.1 to 4.3 above, such type approval may not be extended to other vehicle types.'

The following item 5 shall be substituted for item 3.2.2:

## 5. CONFORMITY OF PRODUCTION

5.1. As a general rule, conformity of production models, with regard to limitation of the emission of gaseous pollutants from the engine, shall be checked on the basis of the description in the communication set out in Annex VII and, where necessary, of all or some of the tests of Types I, II and III described in item 3.2.

5.1.1. Conformity of the vehicle in a Type I test shall be checked as follows:

5.1.1.1. A vehicle shall be taken from the series and subjected to the test described in item 3.2.1.1. However, the limits shown in item 3.2.1.1.4 shall be replaced by the following:

Reference weight (RW) in kg	Mass of carbon monoxide per test in g L <sub>1</sub>	Mass of hydrocarbons per test in g L <sub>2</sub>
RW ≤ 750	96	8.8
750 < RW ≤ 850	105	9.3
850 < RW ≤ 1 020	112	9.6
1 020 < RW ≤ 1 250	129	10.4
1 250 < RW ≤ 1 470	146	11.1
1 470 < RW ≤ 1 700	162	11.9
1 700 < RW ≤ 1 930	178	12.6
1 930 < RW ≤ 2 150	195	13.3
2 150 < RW	211	14.1

5.1.1.2. If the vehicle selected does not meet the requirements of item 5.1.1.1, the manufacturer may ask for measurements to be made on a sample of vehicles taken from the series, including the vehicle originally tested. The manufacturer shall determine the size n of the sample. Vehicles other than the vehicle originally selected shall be subjected to a single Type I test.

The result to be taken into account for the vehicle originally tested shall be the arithmetic mean of the results of the three Type I tests carried out on the vehicle. The arithmetic mean  $\bar{x}$  of the results obtained with the sample and the standard deviation  $S^{(1)}$  of the sample shall then be determined for each gaseous pollutant.

<sup>(1)</sup>  $S^2 = \sum \frac{(x - \bar{x})^2}{n - 1}$ , where x is any one of the individual results obtained with the sample n.

The production of the series shall then be deemed to conform if the following condition is met:

$$\bar{x} + k \cdot S \leq L$$

where

L = the limit value laid down in item 5.1.1.1 for each gaseous pollutant considered; and

k = a statistical factor dependent on n and given in the following table:

n	2	3	4	5	6	7	8	9	10
k	0.973	0.613	0.489	0.421	0.376	0.342	0.317	0.296	0.279
n	11	12	13	14	15	16	17	18	19
k	0.265	0.253	0.242	0.233	0.224	0.216	0.210	0.203	0.198

If  $n \geq 20$        $k = \frac{0.860}{\sqrt{n}}$

- 5.1.2. In a Type II or Type III test carried out on a vehicle taken from the series, the conditions laid down in items 3.2.1.2.2 and 3.2.1.3.2 shall be complied with.
- 5.1.3. Notwithstanding the requirements of item 2.1.1 of Annex III, the technical department responsible for checking conformity of production may, with the consent of the manufacturer, carry out tests of Types I, II and III on vehicles which have been driven less than 3000 km.'

#### ANNEX II: ESSENTIAL CHARACTERISTICS OF THE ENGINE AND INFORMATION CONCERNING THE CONDUCT OF TESTS

Item 1.4 shall read:

'1.4. Number and arrangement of cylinders:.....'

The text on the right hand side of the page (items 3.2.1.3.1 to 3.2.1.3.5) shall read as follows:

'Fuel delivery curve plotted against air flow, and settings required to maintain the curve<sup>(2)</sup>.'

#### ANNEX III: TYPE I TEST

Item 4.1.4 shall read as follows:

'4.1.4. A check shall be made to verify that the setting of the brake so obtained is appropriate for other intermediate states between idling and the maximum speed in the cycle, if necessary, an average setting shall be adopted.'

Item 5.3 shall read as follows:

'5.3. Use of the choke

5.3.1. Manual choke

The choke shall be cut out as soon as possible, and in principle before acceleration from 0 to 50 km/h of the first cycle. If this requirement cannot be met, the moment of effective cutout shall be indicated. The method used to adjust the choke shall be that indicated by the manufacturer.

5.3.2. Automatic choke

If the vehicle is fitted with an automatic choke, it must be driven as indicated by the manufacturer as regards setting and kick-down following a cold start. If the kick-down point is not indicated, it must take place 13 seconds after the engine has commenced running.'

Item 6.2.1: the following shall be added:

'If the design of the bag inlet does not ensure complete mixing of the gases emitted during the test, these gases must be mixed before analysis e.g. via a recirculating pump.'

Item 7.1: the last definition shall read as follows:

'PH: is the partial water-vapour pressure expressed in millimetres of mercury.'

**ANNEX IV: TYPE II TEST**

Item 1.2 shall read as follows:

'1.2. The Type II test shall be carried out immediately after the fourth operating cycle of the Type I test, with the engine at idling speed and the choke not in use, starting from cold. Immediately before each subsequent measurement of the carbon monoxide content, an operating cycle of the Type I test shall be performed as described in item 1.1 of Annex III.'

The following item 1.5 shall be added:

**1.5. Setting control for idling.**

**1.5.1. Definition**

For the purposes of this Directive, "setting controls" means those parts which can be used to alter the idling speed of the engine and can be easily adjusted by an operator using only the tools described under item 1.5.1.1 below. In particular, devices for calibrating fuel and air flow rates shall not be regarded as "setting controls" if their adjustment necessitates the removal of set-stops which normally prohibit their adjustment by anyone other than a qualified mechanic.

1.5.1.1. Tools which can be used to adjust the idle setting controls: screwdriver (ordinary or cross-headed), spanners (ring, open-ended or adjustable), pliers, Allen keys.

**1.5.2. Determination of the measuring points.**

1.5.2.1. The first measurement shall be taken at the vehicle settings used for the Type I test.

1.5.2.2. A sufficient number of characteristic positions shall be determined for each continuously variable setting control.

1.5.2.3. The measurement of the carbon monoxide content of the exhaust gases must be taken at all possible positions of the setting controls, but with the continuously variable controls only for the positions stated under item 1.5.2.2.

1.5.2.4. The Type II test shall be deemed satisfactory if either of the following conditions is fulfilled:

- 1.5.2.4.1. None of the values measured in accordance with the requirements of item 1.5.2.3 exceeds the limit value:
- 1.5.2.4.2. the maximum content obtained if one of the setting controls is continuously varied while the setting of the other controls remains constant does not exceed the limit value, this condition having to be fulfilled in respect of the various combinations of the setting control configurations apart from the continuously varied control.
- 1.5.2.5. The possible positions of the setting controls shall be limited,
  - 1.5.2.5.1. by whichever of the following is greater: the lowest crankshaft speed which the engine can achieve at idling speed; the crankshaft idling speed recommended by the manufacturer, minus 100 rpm;
  - 1.5.2.5.2. by whichever of the following is lowest: the highest crankshaft speed which the engine can be made to achieve via the idle setting controls; the crankshaft idling speed recommended by the manufacturer plus 250 rpm; the crankshaft speed at which the automatic clutch engages.
- 1.5.2.6. In addition, setting positions which are incompatible with the proper functioning of the engine must not be taken as measuring points, in particular when an engine is fitted with several carburettors, all of the carburettors must be adjusted to the same setting.

#### ANNEX V: TYPE III TEST

The following item 5 shall be added after item 4.7.7.:

- 5. ALTERNATIVE TEST METHODS
  - 5.1. The vehicle shall be considered satisfactory if, under each of the measuring conditions specified in item 2.2, it is shown that the recirculating or venting system is able to recycle all of the crankcase gases which could be emitted to the atmosphere.
  - 5.2. The requirements of items 2 and 4.7 shall apply to this method
  - 5.3. **Test methods**
    - 5.3.1. *General method*
      - 5.3.1.1. The apertures of the engine shall be left in the original condition on the engine.
      - 5.3.1.2. The measurement of the pressure inside the crankcase shall be made at the dip stick aperture. The pressure shall be measured with an inclined manometer.
      - 5.3.1.3. The vehicle shall be considered satisfactory, if for each of the measuring conditions specified in item 2.2, the pressure measured in the crankcase does not exceed the atmospheric pressure at the time of measuring.
      - 5.3.1.4. If, for any of the measuring conditions specified in item 2.2, the pressure measured in the crankcase exceeds the atmospheric pressure, the additional test specified in item 5.3.2 shall be carried out when requested by the manufacturer.
      - 5.3.1.5. For tests in accordance with the method described, the crankcase pressure shall be measured to within  $\pm 1$  millimetre of water.



5.3.2. *Additional test method*

- 5.3.2.1. The apertures of the engine shall be left in the original condition on the engine.
- 5.3.2.2. A flexible bag impervious to crankcase gases and with a capacity of about 5 litres shall be connected to the dip stick aperture. This bag shall be empty before each measurement.
- 5.3.2.3. The bag shall be stopped up before each measurement. It shall be opened to the crankcase for five minutes for each measurement condition specified in item 2.2.
- 5.3.2.4. The vehicle shall be considered satisfactory if no visible inflation of the bag occurs under any of the conditions specified in item 2.2.

5.3.3. *Note*

- 5.3.3.1. If the design of the engine is such that the test cannot be performed according to the methods specified in items 5.3.1 and 5.3.2, the measurements shall be carried out according to the method specified in item 5.3.2 with the following modifications:
  - 5.3.3.2. before the test, all apertures other than that required for the collection of the gases shall be stopped up.
  - 5.3.3.3. The bag shall be connected to a suitable take-off which does not introduce any additional loss of pressure and which is located on the recycling circuit of the device directly at the engine-connection aperture.