

Council Directive of 20 March 1970 on the approximation of the laws of the Member States on measures to be taken against air pollution by emissions from motor vehicles (70/220/EEC) (repealed)

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## [<sup>F1</sup>ANNEX XIII

### EC TYPE-APPROVAL OF REPLACEMENT CATALYTIC CONVERTER AS SEPARATE TECHNICAL UNIT

#### Textual Amendments

- F1** Substituted by [Commission Directive 2002/80/EC of 3 October 2002](#) adapting to technical progress [Council Directive 70/220/EEC](#) relating to measures to be taken against air pollution by emissions from motor vehicles (Text with EEA relevance).

#### 1. SCOPE

This Annex applies to the EC type-approval, as separate technical units within the meaning of Article 4(1)(d) of Directive 70/156/EEC, of catalytic converters to be fitted on one or more given types of motor vehicles of categories M<sub>1</sub> and N<sub>1</sub><sup>(1)</sup> as replacement parts.

#### 2. DEFINITIONS

For the purpose of this Annex:

- 2.1. 'original equipment catalytic converter' — see section 2.17 of Annex I;
- 2.2. 'replacement catalytic converter' — see section 2.18 of Annex I;
- 2.3. 'original replacement catalytic converter' — see section 2.19 of Annex I;
- 2.4. 'type of catalytic converter' means catalytic converters which do not differ in such essential aspects as:
  - 2.4.1. number of coated substrates, structure and material;
  - 2.4.2. type of catalytic activity (oxidising, three-way, etc.);
  - 2.4.3. volume, ratio of frontal area and substrate length;
  - 2.4.4. catalyst material content;
  - 2.4.5. catalyst material ratio;
  - 2.4.6. cell density;
  - 2.4.7. dimensions and shape;
  - 2.4.8. thermal protection;
- 2.5. 'vehicle type', see point 2.1 of Annex I;
- 2.6. 'Approval of a replacement catalytic converter' means the approval of a converter intended to be fitted as a replacement part on one or more specific types of vehicles with regard to the limitation of pollutant emissions, noise level and effect on vehicle performance and, where applicable, OBD;
- 2.7. 'deteriorated replacement catalytic converter' is a converter that has been aged or artificially deteriorated to such an extent that it fulfils the requirements laid out in section 1 of Appendix 1 to Annex XI to this Directive<sup>(2)</sup>.

#### 3. APPLICATION FOR EC TYPE-APPROVAL

- 3.1. An application for EC type-approval pursuant to Article 3(4) of Directive 70/156/EEC of a type of replacement catalytic converter shall be submitted by the manufacturer.
- 3.2. A model for the information document is given in Appendix 1 to this Annex.
- 3.3. In the case of an application for approval of a replacement catalytic converter, the following must be submitted to the technical service responsible for the type-approval test:
  - 3.3.1. Vehicle(s) of a type approved in accordance with Directive 70/220/EEC equipped with a new original equipment catalytic converter. This (these) vehicle(s) shall be selected by the applicant with the agreement of the technical service. It (they) shall comply with the requirements of Section 3 of Annex III to this Directive.

The test vehicle(s) shall have no emission control system defects; any excessively worn out or malfunctioning emission-related original part shall be repaired or replaced. The test vehicle(s) shall be tuned properly and set to manufacturer's specification prior to emission testing.

- 3.3.2. One sample of the type of the replacement catalytic converter. This sample shall be clearly and indelibly marked with the applicant's trade name or mark and its commercial designation.
- 3.3.3. An additional sample of the type of the replacement catalytic converter, in the case of a replacement catalytic converter intended to be fitted to a vehicle equipped with an OBD system. This sample shall be clearly and indelibly marked with the applicant's trade name or mark and its commercial designation. It must have been deteriorated as defined in point 2.7.

#### 4. GRANTING OF EC TYPE-APPROVAL

- 4.1. If the relevant requirements are satisfied, EC type-approval pursuant to Article 4(3) of Directive 70/156/EEC shall be granted.
- 4.2. A model for the EC type-approval certificate is given in Appendix 2 to this Annex.
- 4.3. An approval number in accordance with Annex VII to Directive 70/156/EEC shall be assigned to each type of replacement catalytic converter approved. The same Member State shall not assign the same number to another replacement catalytic converter type. The same type-approval number may cover the use of that replacement catalytic converter type on a number of different vehicle types.
- [<sup>F2</sup>4.4. If the applicant for type-approval is able to demonstrate to the type-approval authority or technical service that the replacement catalytic converter is of a type indicated in section 1.10 of the Appendix to Annex X to this Directive, the granting of a type-approval certificate shall not be dependent on verification of compliance with the requirements specified in section 6.]

#### Textual Amendments

- F2** Inserted by [Commission Directive 2003/76/EC of 11 August 2003 amending Council Directive 70/220/EEC relating to measures to be taken against air pollution by emissions from motor vehicles \(Text with EEA relevance\)](#).

#### 5. EC TYPE-APPROVAL MARKING

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- 5.1. Every replacement catalytic converter conforming to the type approved under this Directive as a separate technical unit shall bear an EC type-approval mark.
- 5.2. This mark shall consist of a rectangle surrounding the letter 'e' followed by the distinguishing number or letters of the Member State which has granted the EC type-approval:
- 1 for Germany
  - 2 for France
  - 3 for Italy
  - 4 for the Netherlands
  - 5 for Sweden
  - 6 for Belgium
  - [<sup>F3</sup>7 for Hungary
  - 8 for the Czech Republic]
  - 9 for Spain
  - 11 for the United Kingdom
  - 12 for Austria
  - 13 for Luxembourg
  - 17 for Finland
  - 18 for Denmark
  - [<sup>F4</sup>19 for Romania]
  - [<sup>F3</sup>20 for Poland]
  - 21 for Portugal
  - 23 for Greece
  - 24 for Ireland
  - [<sup>F3</sup>26 for Slovenia
  - 27 for Slovakia
  - 29 for Estonia
  - 32 for Latvia
  - [<sup>F4</sup>34 for Bulgaria]
  - 36 for Lithuania
  - CY for Cyprus
  - MT for Malta]

#### Textual Amendments

- F3** Inserted by [Act concerning the conditions of accession of the Czech Republic, the Republic of Estonia, the Republic of Cyprus, the Republic of Latvia, the Republic of Lithuania, the Republic of Hungary, the Republic of Malta, the Republic of Poland, the Republic of Slovenia and the Slovak Republic and the adjustments to the Treaties on which the European Union is founded.](#)
- F4** Inserted by [Council Directive 2006/96/EC of 20 November 2006 adapting certain Directives in the field of free movement of goods, by reason of the accession of Bulgaria and Romania.](#)

It must also include in the vicinity of the rectangle the 'base approval number' contained in point 4 of the type-approval number referred to in Annex VII to Directive 70/156/EEC, preceded by the two figures indicating the sequence number assigned to the most recent major technical

amendment to Directive 70/220/EEC on the date EC component type-approval was granted. In this Directive, the sequence number is 01.

5.3. The EC type-approval approval mark referred to in point 5.2 shall be clearly legible and indelible and must, wherever possible, be visible when the replacement catalytic converter is installed on the vehicle.

5.4. Appendix 3 to this Annex gives examples of arrangements of the approval mark and approval data referred to above.

## 6. REQUIREMENTS

### 6.1. General requirements

6.1.1. The replacement catalytic converter shall be designed, constructed and capable of being mounted so as to enable the vehicle to comply with the provisions of this Directive, against which it originally complied with, and that the pollutant emissions are effectively limited throughout the normal life of the vehicle under normal conditions of use.

6.1.2. The installation of the replacement catalytic converter shall be at the exact position of the original equipment catalytic converter, and the position on the exhaust line of the oxygen probe(s) and other sensors, if applicable, shall not be modified.

6.1.3. If the original equipment catalytic converter includes thermal protection, the replacement catalytic converter shall include equivalent protection.

6.1.4. The replacement catalytic converter shall be durable, i.e. designed, constructed and capable of being mounted so that reasonable resistance to the corrosion and oxidation phenomena to which it is exposed is obtained, having regard to the conditions of use of the vehicle.

### 6.2. Requirements regarding emissions

The vehicle(s) indicated in point 3.3.1 of this Annex, equipped with a replacement converter of the type for which approval is requested, shall be subjected to a Type I test under the conditions described in the corresponding Annex to this Directive in order to compare its performance with the original equipment catalytic converter according to the procedure described below.

#### 6.2.1. Determination of the basis for comparison

The vehicle(s) shall be fitted with a new original equipment catalytic converter (see point 3.3.1) which shall be run in with 12 extra urban cycles (type I test part 2).

After this preconditioning, the vehicle(s) shall be kept in a room in which the temperature remains relatively constant between 293 and 303 K (20 °C and 30 °C). This conditioning shall be carried out for at least six hours and continue until the engine oil and coolant temperature are within  $\pm 2$  K of the temperature of the room. Subsequently three type I tests shall be made.

#### 6.2.2. Exhaust gas test with replacement catalytic converter

The original equipment catalytic converter of the test vehicle(s) shall be replaced by the replacement catalytic converter (see point 3.3.2) which shall be run in with 12 extra urban cycles (type I test part 2).

After this preconditioning, the vehicle(s) shall be kept in a room in which the temperature remains relatively constant between 293 and 303 K (20 °C and 30 °C). This conditioning shall

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be carried out for at least six hours and continue until the engine oil and coolant temperature are within  $\pm 2$  K of the temperature of the room. Subsequently three type I tests shall be made.

### 6.2.3. Evaluation of the emission of pollutants of vehicles equipped with replacement catalytic converters

The test vehicle(s) with the original equipment catalytic converter shall comply with the limit values according to the type-approval of the vehicle(s) including, if applicable, the deterioration factors applied during the type-approval of the vehicle(s).

The requirements regarding emissions of the vehicle(s) equipped with the replacement catalytic converter shall be deemed to be fulfilled if the results meet, for each regulated pollutant (CO, HC, NO<sub>x</sub> and particulates) the following conditions:

$$M \leq 0,85 S + 0,4 G$$

$$M \leq G$$

where:

M is the mean value of the emissions of one pollutant or the sum of two pollutants<sup>(3)</sup> obtained from the three type I tests with the replacement catalytic converter;

S is the mean value of the emissions of one pollutant or the sum of two pollutants<sup>(3)</sup> obtained from the three type I tests with the original catalytic converter;

G is the limit value of the emissions of one pollutant or of the sum of two pollutants<sup>(3)</sup> according to the type-approval of the vehicle(s) divided by, if applicable, the deterioration factors determined in accordance with point 6.4.

Where approval is applied for different types of vehicles from the same car manufacturer, and provided that these different types of vehicle are fitted with the same type of original equipment catalytic converter, the type I test may be limited to at least two vehicles selected after agreement with the technical service responsible for approval.

### 6.3. Requirements regarding noise and exhaust back-pressure

The replacement catalytic converter shall satisfy the technical requirements of Annex II to Directive 70/157/EEC.

### 6.4. Requirements regarding durability

The replacement catalytic converter shall comply with the requirements of point 5.3.5 of Annex I to this Directive, i.e. type V test or deterioration factors from the following table for the results of the type I tests.

TABLE XIII.6.4

Engine category	Deterioration factors				
	CO	HC <sup>a</sup>	NO <sub>x</sub> <sup>a</sup>	HC + NO <sub>x</sub>	Particulate
Positive-ignition	1,2	1,2	1,2	1,2 <sup>b</sup>	—
<b>a</b>	Applicable only to vehicles approved to Directive 70/220/EEC, as amended by Directive 98/69/EC or subsequent amending Directives.				
<b>b</b>	Applicable only to positive-ignition engines approved to Directive 70/220/EEC, as amended by Directive 96/69/EC or earlier Directives.				

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Compression ignition	1,1	—	1,0	1,0	1,2
<b>a</b>	Applicable only to vehicles approved to Directive 70/220/EEC, as amended by Directive 98/69/EC or subsequent amending Directives.				
<b>b</b>	Applicable only to positive-ignition engines approved to Directive 70/220/EEC, as amended by Directive 96/69/EC or earlier Directives.				

#### 6.5. Requirements regarding OBD compatibility (applicable only to replacement catalytic converters intended to be fitted to vehicles equipped with an OBD system)

OBD compatibility demonstration is required only when the original catalyst was monitored in the original configuration.

- 6.5.1. The compatibility of the replacement catalytic converter with the OBD system shall be demonstrated by using the procedures described in Directive 98/69/EC, Annex XI, Appendix 1.
- 6.5.2. The provisions of Directive 98/69/EC, Annex XI, Appendix 1 applicable to components other than the catalytic converter shall not be applied.
- 6.5.3. The aftermarket manufacturer may use the same preconditioning and test procedure as used during the original type-approval. In this case, the type-approval authority shall provide, on request and on a non-discriminatory basis, Appendix 2 to the EC type-approval certificate which contains the number and type of preconditioning cycles and the type of test cycle used by the original equipment manufacturer for OBD testing of the catalytic converter.
- 6.5.4. In order to verify the correct installation and functioning of all other components monitored by the OBD system, the OBD system shall indicate no malfunction and have no stored fault codes prior to the installation of any of the replacement catalytic converters. An evaluation of the status of the OBD system at the end of the tests described in point 6.2.1 of this Annex may be used for this purpose.
- 6.5.5. The MI (reference section 2.5 of Annex XI to this Directive) must not activate during vehicle operation required by point 6.2.2 of this Annex.

### 7. DOCUMENTATION

- 7.1. Each new replacement catalytic converter shall be accompanied by the following information:
- 7.1.1. the catalyst manufacturer's name or trade mark;
- 7.1.2. the vehicles (including year of manufacture) for which the replacement catalytic converter is approved, including, where applicable, a marking to identify if the replacement catalytic converter is suitable for fitting to a vehicle that is equipped with an on-board diagnostic (OBD) system;
- 7.1.3. installation instructions, where necessary.
- 7.2. This information shall be provided either:  
as a leaflet accompanying the replacement catalytic converter; or  
on the packaging in which the replacement catalytic converter is sold; or  
or by any other applicable means.

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In any case, the information must be available in the product catalogue distributed to points of sale by the manufacturer of replacement catalytic converters.

## 8. MODIFICATION OF THE TYPE AND AMENDMENTS TO APPROVALS

In the case of modification of the type approved pursuant to this Directive, the provisions of Article 5 of Directive 70/156/EEC shall apply.

## 9. CONFORMITY OF PRODUCTION

Measures to ensure the conformity of production shall be taken in accordance with the provisions laid down in Article 10 of Directive 70/156/EEC.

### 9.2. Special provisions

9.2.1. The checks referred to in point 2.2 of Annex X to Directive 70/156/EEC shall include compliance with the characteristics as defined under point 2.4 to this Annex.

9.2.2. For the application of point 3.5 of Annex X to Directive 70/156/EEC, the tests described in point 6.2 of this Annex (requirements regarding emissions) may be carried out. In this case, the holder of the approval may ask, as an alternative, to use as a basis for comparison not the original equipment catalytic converter, but the replacement catalytic converter which was used during the type-approval tests (or another sample that has been proven to conform to the approved type). Emissions values measured with the sample under verification shall then on average not exceed by more than 15 % the mean values measured with the sample used for reference.



## Appendix 1

Information document No ... relating to the EC type-approval of replacement catalytic converters (Directive 70/220/EEC as last amended by Directive ...

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## Appendix 2

### Model

(Maximum format: A4 (210 mm × 297 mm))

## Addendum

to EC type-approval certificate No ...

concerning the separate technical unit type-approval of replacement catalytic converters for motor vehicles with regard to Directive 70/220/EEC, as last amended by Directive ...

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### Appendix 3

The above approval mark affixed to a component of a replacement catalytic converter shows that the type concerned has been approved in France (e 2), pursuant to this Directive. The first two digits of the approval number (00) refer to the sequence number assigned to the most recent amendments made to Directive 70/220/EEC. The following four digits (1234) are those allocated by the approval authority to the replacement catalytic converter as the base approval number.]

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- (1) [<sup>F1</sup>As defined in Annex II Section A to Directive 70/156/EEC.
- (2) For the purpose of the demonstration test of vehicles equipped with positive-ignition engines, when the HC value measured under point 6.2.1 of this Annex is higher than the value measured during type approval of the vehicle, the difference has to be added to the threshold values mentioned in point 3.3.2 of Annex XI, to which the exceedance allowed in point 1 of Appendix 1 to Annex XI is applied.
- (3) As appropriate with respect to the limit values defined in point 5.3.1.4 of Annex I to Directive 70/220/EEC in the version against which the vehicle equipped with the original catalytic converter was type-approved.]

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**Textual Amendments**

- F1** Substituted by [Commission Directive 2002/80/EC of 3 October 2002 adapting to technical progress Council Directive 70/220/EEC relating to measures to be taken against air pollution by emissions from motor vehicles \(Text with EEA relevance\).](#)