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► **B** **DIRECTIVE 2000/25/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**
of 22 May 2000
on action to be taken against the emission of gaseous and particulate pollutants by engines
intended to power agricultural or forestry tractors and amending Council Directive 74/150/EEC
(OJ L 173, 12.7.2000, p. 1)

Amended by:

		Official Journal		
		No	page	date
► M1	Commission Directive 2005/13/EC of 21 February 2005	L 55	35	1.3.2005
► M2	Council Directive 2006/96/EC of 20 November 2006	L 363	81	20.12.2006
► M3	Commission Directive 2010/22/EU of 15 March 2010	L 91	1	10.4.2010
► M4	Directive 2011/72/EU of the European Parliament and of the Council of 14 September 2011	L 246	1	23.9.2011
► M5	Directive 2011/87/EU of the European Parliament and of the Council of 16 November 2011	L 301	1	18.11.2011
► M6	Council Directive 2013/15/EU of 13 May 2013	L 158	172	10.6.2013
► M7	Commission Directive 2014/43/EU of 18 March 2014	L 82	12	20.3.2014

Amended by:

► A1	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	L 236	33	23.9.2003
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**DIRECTIVE 2000/25/EC OF THE EUROPEAN PARLIAMENT
AND OF THE COUNCIL**

of 22 May 2000

**on action to be taken against the emission of gaseous and
particulate pollutants by engines intended to power agricultural
or forestry tractors and amending Council Directive 74/150/EEC**

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE
EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and
in particular Article 95 thereof,

Having regard to the proposal from the Commission ⁽¹⁾,

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

Acting in accordance with the procedure laid down in Article 251 of the
Treaty ⁽³⁾,

Whereas:

- (1) To ensure the proper functioning of the internal market, 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 ⁽⁴⁾ and the 22 specific Directives adopted between 1974 and 1989 harmonised the technical specifications in this field.
- (2) In order to further safeguard the environment, it is necessary to supplement the measures already adopted by Council Directive 77/537/EEC of 28 June 1977 on the approximation of the laws of the Member States relating to the measures to be taken against the emission of pollutants from diesel engines for use in wheeled agricultural or forestry tractors ⁽⁵⁾ (opacity of exhaust gases) with other measures relating, in particular, to physicochemical emissions. By referring to the provisions of Directive 97/68/EC of the European Parliament and of the Council of 16 December 1997 on the approximation of the laws of the Member States relating to measures against the emission of gaseous and

⁽¹⁾ OJ C 303, 2.10.1998, p. 9.

⁽²⁾ OJ C 101, 12.4.1999, p. 13.

⁽³⁾ Opinion of the European Parliament of 5 May 1999 (OJ C 279, 1.10.1999, p. 209), Council Common Position of 22 November 1999 (OJ C 17, 20.1.2000, p. 13) and Decision of the European Parliament of 12 April 2000 (not yet published in to Official Journal).

⁽⁴⁾ OJ L 84, 28.3.1974, p. 10. Directive as last amended by Directive 97/54/EC (OJ L 277, 10.10.1997, p. 24).

⁽⁵⁾ OJ L 220, 29.8.1977, p. 38. Directive as last amended by Directive 97/54/EC.

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particulate pollutants from internal combustion engines to be installed in non-road mobile machinery ⁽¹⁾, this Directive lays down the limit values for emissions of gaseous and particulate pollutants to be applied in successive stages, and the test procedure for internal combustion engines intended to power agricultural or forestry tractors. Compliance with the provisions of Council Directive 88/77/EEC of 3 December 1987 on the approximation of the laws of the Member States relating to the measures to be taken against the emission of gaseous pollutants from diesel engines for use in vehicles ⁽²⁾, can also be accepted as compliance with the requirements of this Directive.

- (3) In order to facilitate access to third-country markets, it is necessary to establish equivalence between the requirements of this Directive for the first stage and the requirements laid down in United Nations Economic Commission for Europe (UN/ECE) Regulation No 96 concerning the component type-approval of compression ignition engines intended to be fitted to agricultural or forestry tractors in terms of their pollutant emissions.

- (4) In order to maximise the benefits for the European environment and, at the same time, to ensure the unity of the market, it is necessary to adopt very strict mandatory standards at regular intervals. Any further reduction in the limit values and any changes to the test procedure can be adopted only on the basis of studies and research to be conducted into existing and foreseeable technological potential and into the cost effectiveness thereof, in order to allow production on an industrial scale of agricultural or forestry tractors that are capable of meeting these more stringent limits.

- (5) Technical progress requires rapid adaptation of the technical requirements set out in the Annexes to this Directive. The Commission is committed to aligning without delay the limit values and dates in this Directive to future changes in Directive 97/68/EC. In every case where the European Parliament and the Council empower the Commission to implement the rules drawn up for agricultural or forestry tractors, a prior consultation procedure involving the Commission and the Member States meeting in committee should be introduced.

⁽¹⁾ OJ L 59, 27.2.1998, p. 1.

⁽²⁾ OJ L 36, 9.2.1988, p. 33. Directive as last amended by Directive 96/1/EC (OJ L 40, 17.2.1996, p. 1).

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- (6) The requirements of this Directive supplement those of Directive 77/537/EEC, which is referred to in Item 2.8.1 of Annex II to Directive 74/150/EEC; Directive 74/150/EEC thus needs to be amended in order to add a new Item 2.8.2 in Annex II covering the topic dealt with by this Directive in conjunction with the reference SD (Specific Directive).
- (7) The objective of reducing the level of pollutant emissions from agricultural or forestry tractors and the smooth functioning of the internal market for such vehicles cannot be sufficiently achieved by individual Member States and can therefore be better achieved by the approximation of the laws of the Member States relating to measures to be taken against air pollution by such vehicles. The measures contained in this Directive do not go beyond what is necessary to achieve the objectives of the Treaty,

HAVE ADOPTED THIS DIRECTIVE:

Article 1

Definitions

For the purposes of this Directive:

- ‘agricultural or forestry tractor’ (hereinafter referred to as ‘tractor’) means any vehicle as defined in Article 1(1) of Directive 74/150/EEC,
- ‘engine’ means any internal combustion engine intended to power tractors as defined in Annex I,
- ‘type-approval of an engine type or family as a separate technical unit with respect to pollutant emissions’ means the instrument whereby a Member State certifies that an engine type or family intended to power tractors meets the technical requirements of this Directive,
- ‘type-approval of a tractor type in respect of pollutant emissions’ means the instrument whereby a Member State certifies that a tractor type equipped with an engine meets the technical requirements of this Directive,
- ‘family of engines’ means two or more types of engine that are similar in design and which, therefore, could display characteristics that are comparable in terms of pollutant emissions,

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- ‘replacement engine’ means a newly built engine which replaces an engine in a machine and which has been supplied for this purpose only,

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- ‘flexibility scheme’ means the exemption procedure by means of which a Member State permits the placing on the market and entry into service of a limited number of tractors in accordance with the requirements laid down by Article 3a,
- ‘engine category’ means the classification of engines which combines the power range with the stage of exhaust emission limits,
- ‘making available on the market’ means any supply of a tractor or engine for distribution or use on the Union market in the course of a commercial activity, whether in return for payment or free of charge,
- ‘placing on the market’ means the first making available on the market of a tractor or engine,
- ‘entry into service’ means the first use, for its intended purpose, in the Union of a tractor or engine. The date on which it is registered, if applicable, or placed on the market shall be considered the date of entry into service.

▼B*Article 2***Type-approval procedure**

The procedure for granting type-approval for an engine type or family in respect of pollutant emissions, the procedure for granting type-approval for tractors with respect to pollutant emissions, and the conditions of the unrestricted placing on the market of such engines and tractors, are as laid down in Directive 74/150/EEC.

*Article 3***Obligations**

1. Subject to Article 5, any engine type or family must meet the requirements of Annex I.
2. Any tractor type must meet the requirements of Annex II. In this respect type-approvals for engine type or families which have been approved in accordance with Annex I or the provisions mentioned in Annex III shall be recognised.

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3. Replacement engines shall comply with the limit values that the engine to be replaced had to meet when originally placed on the market.

The text ‘REPLACEMENT ENGINE’ shall be attached to a label on the engine or inserted into the owner’s manual.

▼M4*Article 3a***Flexibility scheme**

By way of derogation from Article 3(1) and (2), Member States shall provide that, at the request of the tractor manufacturer, and on condition that the approval authority has granted the relevant permit for placing on the market in accordance with the procedures laid down in Annex IV, a limited number of tractors fitted with engines approved in accordance with the requirements of the emission limits stage immediately preceding the applicable one may enter into service.

The flexibility scheme shall begin when a given stage becomes applicable and shall have the same duration as the stage itself. The flexibility scheme set out in section 1.2 of Annex IV shall, however, be restricted to the duration of Stage III B or to three years where no subsequent stage exists.

▼B*Article 4***Timetable**

1. Member States may not after 30 September 2000:

- refuse to grant EC type-approval or national type-approval in respect of an engine type or family, or
- prohibit the sale, entry into service or use of a new engine, or
- refuse to grant EC type-approval or national type-approval of tractor types, or
- prohibit the use, the sale, the initial entry into service of tractor types,

on grounds relating to air pollution if the pollutants emitted by those engines or the engines fitted to those tractors meet the requirements of this Directive.

2. Member States may no longer grant EC type-approval or national type-approval for a type or family of engines or a tractor type where the pollutants emitted by the engine do not meet the requirements of this Directive:

(a) in stage I

- after 31 December 2000 for engines of categories B and C (power range as defined in Article 9(2) of Directive 97/68/EC);

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(b) in stage II

- after 31 December 2000 for engines of categories D and E (power range as defined in Article 9(3) of Directive 97/68/EC),
- after 31 December 2001 for engines of category F (power range as defined in Article 9(3) of Directive 97/68/EC),
- after 31 December 2002 for engines of category G (power range as defined in Article 9(3) of Directive 97/68/EC);

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(c) in stage III A

- after 31 December 2005 for engines of categories H, I and K (power range as defined in Article 9(3a) of Directive 97/68/EC),
- after 31 December 2006 for engines of category J (power range as defined in Article 9(3a) of Directive 97/68/EC);

(d) in stage III B

- after 31 December 2009 for engines of category L (power range as defined in Article 9(3c) of Directive 97/68/EC),
- after 31 December 2010 for engines of categories M and N (power range as defined in Article 9(3c) of Directive 97/68/EC),
- after 31 December 2011 for engines of category P (power range as defined in Article 9(3c) of Directive 97/68/EC);

(e) in stage IV

- after 31 December 2012 for engines of category Q (power range as defined in Article 9(3d) of Directive 97/68/EC),
- after 30 September 2013 for engines of category R (power range as defined in Article 9(3d) of Directive 97/68/EC).

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3. Member States shall prohibit the initial entry into service of engines and tractors where the pollutants emitted by the engines do not meet the requirements of the Directive:

- after 30 June 2001 for engines of categories A, B, and C,
- after 31 December 2001 for engines of categories D and E,
- after 31 December 2002 for engines of category F,
- after 31 December 2003 for engines of category G,

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- after 31 December 2005 for engines of category H,
- after 31 December 2006 for engines of categories I,
- after 31 December 2006 for engines of categories K,
- after 31 December 2007 for engines of category J,
- after 31 December 2010 for engines of category L,
- after 31 December 2011 for engines of categories M
- after 31 December 2011 for engines of categories N,
- after 31 December 2012 for engines of category P,
- after 31 December 2013 for engines of category Q,
- after 30 September 2014 for engines of category R.

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However, for tractors fitted with category E or F engines, the above dates shall be postponed for six months.

4. The requirements of paragraph 3 do not apply to engines intended to be installed in tractor types for export to third countries and the replacement of engines for tractors in service.

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5. For engines of categories A to G Member States may postpone the dates laid down in paragraph 3 for two years with respect to engines with a production date prior to the said date. They may grant other exceptions under the conditions laid down in Article 10 of Directive 97/68/EC.

6. For engines of categories H to R, the dates laid down in paragraph 3 shall be postponed for two years with respect to engines with a production date prior to the said date.

7. For engine types or engine families meeting the limit values set out in the table in section 4.1.2.4, 4.1.2.5 and 4.1.2.6 of Annex I to Directive 97/68/EC before the dates laid down in paragraph 3 of this Article, Member States shall allow special labelling and marking to show that the equipment concerned meets the required limit values before the dates laid down.

8. In accordance with the procedure referred to in Article 20(2) of Directive 2003/37/EC, the Commission shall align the limit values and dates of stages IIIB and IV with the limit values and dates decided following the revision procedure provided for in Article 2(b) of Directive 2004/26/EC, with a view to the needs of agricultural or forestry tractors and, in particular, tractors of categories T2, T4.1 and C2.

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9. By way of derogation, the dates set out in points (d) and (e) of paragraph 2 and in paragraph 3 shall, for tractors of categories T2, T4.1 and C2, as defined respectively in the second indent of point A.1 of Chapter A, in point 1.1 of Part I of Appendix 1 of Chapter B, and in point A.2 of Chapter A of Annex II to Directive 2003/37/EC, and equipped with engines of categories L to R, be postponed for 3 years. Until such dates, the requirements of Stage III A in this Directive shall continue to apply.

*Article 5***Recognition of equivalence and conformity**

The authorities of Member States granting EC type-approval for a type or family of engines shall recognise the type-approvals granted in accordance with the provisions of Annex III and the corresponding type-approval marks as being in conformity with this Directive.

*Article 6***Further reduction in emission limit values**

As soon as the provisions referred to in Article 19 of Directive 97/68/EC are adopted by the European Parliament and the Council, the Commission shall, in accordance with the procedure laid down in Article 13 of Directive 74/150/EEC, without delay align the limit values and dates contained in this Directive with those adopted following the decisions taken pursuant to the abovementioned Article 19.

*Article 7***Technical adaptations**

Any amendments needed in order to adapt the requirements of the Annexes to technical progress shall be adopted in accordance with the procedure laid down in Article 13 of Directive 74/150/EEC.

*Article 8***Amendment of Directive 74/150/EEC**

In Annex II to Directive 74/150/EEC the following item 2.8.2 shall be inserted: '2.8.2. Emission of gaseous and particulate pollutants by engines: SD'.

*Article 9***Transposition into national law**

Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before 29 September 2000. They shall forthwith inform the Commission thereof.

They shall apply these provisions from 31 December 2000.

When Member States adopt these measures, they shall contain a reference to this Directive, or be accompanied by such a reference on the occasion of their official publication. The methods of making such a reference shall be laid down by the Member States.

*Article 10***Entry into force**

This Directive shall enter into force on the day of its publication in the *Official Journal of the European Communities*.

*Article 11***Addressees**

This Directive is addressed to the Member States.

**LIST OF ANNEXES**

ANNEX I	Requirements for EC type-approval of a type of engine or engine family for a tractor as a separate technical unit in terms of the pollutants emitted
	Appendix 1: Information document concerning the EC type-approval of a parent engine type for use in a tractor as a separate technical unit, in terms of the pollutants emitted
	Appendix 2: EC type-approval certificate for a separate technical unit
	Appendix 3: Marking of engines
	Appendix 4: Numbering
	Appendix 5: EC type-approval mark
ANNEX II	Requirements for the EC type-approval of a tractor type equipped with a compression ignition engine in respect of the pollutants emitted
	Appendix 1: Information document
	Appendix 2: EC type-approval certificate
ANNEX III	Recognition of alternative type-approvals
ANNEX IV	Provisions for tractors and engines placed on the market under the flexibility scheme laid down in Article 3a

▼B*ANNEX I***REQUIREMENTS FOR EC TYPE-APPROVAL OF A TYPE OF ENGINE OR ENGINE FAMILY FOR A TRACTOR AS A SEPARATE TECHNICAL UNIT IN TERMS OF THE POLLUTANTS EMITTED**

0. GENERAL

Unless otherwise defined by this Directive, the appropriate definitions, symbols and abbreviations contained in Directive 97/68/EC are applicable.

1. DEFINITIONS

— ‘type of tractor engine in terms of pollutants emitted’ means compression-ignition engines which display no essential differences with regard to the characteristics defined in Appendix 1 to Annex I,

— ‘pollutants emitted’ means gaseous pollutants (carbon monoxide, hydrocarbons, and nitrogen oxides) and polluting particulates.

2. APPLICATION FOR EC TYPE-APPROVAL FOR A TYPE OF ENGINE OR ENGINE FAMILY AS A SEPARATE TECHNICAL UNIT

2.1. The application for the type-approval of an engine type or family in terms of the pollutants emitted shall be made by the engine manufacturer or his agent.

2.2. It shall be accompanied by the information document, completed in triplicate, a specimen for which is provided in Appendix 1 to this Annex.

2.3. An engine conforming to the ‘engine type’ or ‘parent engine’ characteristics described in Appendix 1 to this Annex shall be submitted to the technical service responsible for conducting the approval tests.

2.4. In the case of an applicant for type-approval of an engine family, if the approval authority determines that, with regard to the selected parent engine, the submitted application does not fully represent the engine family described in Annex II, Appendix 2, to Directive 97/68/EC an alternative and, if necessary an additional parent engine which is determined by the approval authority shall be provided for approval according to Article 3(1) of Directive 97/68/EC.

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3. SPECIFICATIONS AND TESTS

The provisions of Annex I, Sections 4, 8 and 9, Appendices 1 and 2, and Annexes III, IV and V to Directive 97/68/EC shall apply.

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4. TYPE-APPROVAL FOR A SEPARATE TECHNICAL UNIT

An EC type-approval certificate conforming to the specimen provided in Appendix 2 to this Annex shall be issued.

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5. ENGINE MARKING

The engine shall be marked in accordance with the requirements of Appendix 3 to this Annex. The identification number must comply with the provisions of Appendices 4 and 5 to this Annex.

6. CONFORMITY OF PRODUCTION

Without prejudice to the requirements of Article 8 of Directive 74/150/EEC, conformity of production shall be checked in accordance with the provisions of Section 5 of Annex I to Directive 97/68/EC.

7. NOTIFICATION ON THE ISSUE OF APPROVALS

Notice of the approval, extension, refusal or withdrawal of approval or of production definitely discontinued in relation to an engine type pursuant to Annex I or a tractor type pursuant to Annex II must be communicated to the Member States in accordance with Article 5(1) of Directive 74/150/EEC.

8. ENGINE FAMILY

8.1. Parameters defining the engine family

The engine family may be defined by basic design parameters which must be common to all engines within the family. In some cases there may be interaction of parameters. These effects must also be taken into consideration in order to ensure that only engines with similar exhaust-emission characteristics are included within an engine family.

For engines to be considered to belong to the same engine family, the following list of basic parameters must be common.

8.1.1. Combustion cycle: 2 stroke/4 stroke ⁽¹⁾8.1.2. Cooling medium: air/water/oil ⁽¹⁾

8.1.3. Individual cylinder displacement

— engines to be within a total spread of 15 %

— number of cylinders for engines with after-treatment device

8.1.4. Method of air aspiration: naturally aspirated/pressure charged ⁽¹⁾

8.1.5. Combustion chamber type/design

— pre-chamber

— swirl chamber

— open chamber

⁽¹⁾ Delete where inappropriate.

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- 8.1.6. Valve and porting — configuration, size and number
 - cylinder head
 - cylinder wall
 - crankcase
- 8.1.7. Fuel system
 - pump-line-injector
 - in-line pump
 - distributor pump
 - single element
 - unit injector
- 8.1.8. Exhaust gas recirculation
- 8.1.9. Water injection/emulsion ⁽¹⁾
- 8.1.10. Air injection
- 8.1.11. Charge cooling system
- 8.1.12. Oxidation catalyst
- 8.1.13. Reduction catalyst
- 8.1.14. Thermal reactor
- 8.1.15. Particulates trap
- 8.2. Choice of parent engine
 - 8.2.1. The parent engine of the family shall be selected using the primary criterion of the highest fuel delivery per stroke at the declared maximum torque speed. If two or more engines share this primary criterion, the parent engine shall be selected using the secondary criterion of highest fuel delivery per stroke at rated speed. Under certain circumstances, the approval authority may conclude that the worst-case emission rate of the family can best be characterised by testing a second engine. Thus, the approval authority may select an additional engine for tests based on features which indicate that it may have the highest emission levels of the engines within that family.
 - 8.2.2. If engines within the family incorporate other variable features which could be considered to affect exhaust emissions, these features must also be identified and taken into account in the selection of the parent engine.

⁽¹⁾ Delete where inappropriate.

▼ **M1***Appendix 1***Information document****concerning the EC type-approval of a parent engine type for use in a tractor as a separate technical unit, in terms of the pollutants emitted**

The information set out below shall be supplied in triplicate and be accompanied by a list of enclosures. Any drawings needed shall be supplied to an appropriate scale and with sufficient details in A4 format or in a folder of this format. Photographs shall, where needed, show sufficient detail.

SECTION 1 GENERAL

1. **Parent engine/engine type** ⁽¹⁾ ⁽²⁾
 - 1.1. Make(s) (trade name of manufacturer):
 - 1.2. Type and commercial description of the parent and (if applicable) of the family of engine(s) ⁽¹⁾:
 - 1.3. Manufacturer's type coding as marked on the engine(s) and method of affixing:
 - 1.3.1. Location, coding and method of affixing of the type engine identification number:
 - 1.3.2. Location and method of affixing of the EC component type-approval mark:
 - 1.4. Name and address of manufacturer:
 - 1.5. Address(es) of assembly plant(s):

SECTION 2 ENGINE TYPE WITHIN THE FAMILY

2. **Essential characteristics of the family's parent engine** ⁽³⁾
 - 2.1. Description of the compression-ignition engine
 - 2.1.1. Manufacturer:
 - 2.1.2. Manufacturer's engine code as affixed to engines:
 - 2.1.3. Cycle: four stroke/two stroke ⁽¹⁾
 - 2.1.4. Bore: mm
 - 2.1.5. Stroke: mm
 - 2.1.6. Number and layout of cylinders:
 - 2.1.7. Swept volume: cm³

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- 2.1.8. Rated speed: r/min
- 2.1.9. Peak-torque speed: r/min
- 2.1.10. Compression ratio (²):
- 2.1.11. Combustion system description:
- 2.1.12. Drawing(s) of combustion chamber and piston crown:
- 2.1.13. Minimum cross-sectional area of inlet and outlet ports:
- 2.1.14. Cooling system
- 2.1.14.1. Coolant
- 2.1.14.1.1. Nature of coolant:
- 2.1.14.1.2. Circulating pump(s): yes/no (¹)
- 2.1.14.1.3. Characteristics or make(s) and type(s) (if applicable):
- 2.1.14.1.4. Drive ratio(s) (if applicable):
- 2.1.14.2. Air
- 2.1.14.2.1. Blower: yes/no (¹)
- 2.1.14.2.2. Characteristics or make(s) and type(s) (if applicable):
- 2.1.14.2.3. Drive ratio(s) (if applicable):
- 2.1.15. Temperature permitted by the manufacturer:
- 2.1.15.1. Liquid cooling: maximum temperature at outlet: K
- 2.1.15.2. Air cooling: reference point:
- Maximum temperature at reference point: K
- 2.1.15.3. Maximum charge air temperature at the intercooler outlet (if applicable): K
- 2.1.15.4. Maximum exhaust temperature at the point in the exhaust pipe(s) adjacent to the outer flange(s) of the exhaust manifold(s): K
- 2.1.15.5. Lubricant temperature: minimum: K maximum: K
- 2.1.16. Pressure charger: yes/no (¹)
- 2.1.16.1. Make:
- 2.1.16.2. Type:
- 2.1.16.3. Description of the system (e.g. maximum charge pressure, waste-gate, if applicable):
- 2.1.16.4. Intercooler: yes/no (¹)
- 2.1.17. Intake system: maximum allowable intake depression at rated engine speed and at 100 % load: kPa
- 2.1.18. Exhaust system: maximum permissible exhaust back pressure at rated engine speed and at 100 % load: kPa

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- 2.2. Measures taken against air pollution
 - 2.2.1. Device for recycling crankcase gases: yes/no ⁽¹⁾
 - 2.2.2. Additional anti-pollution devices (if any, and if not covered by another heading)
 - 2.2.2.1. Catalytic converter: yes/no ⁽¹⁾
 - 2.2.2.1.1. Make(s):
 - 2.2.2.1.2. Type(s):
 - 2.2.2.1.3. Number of catalytic converters and elements
 - 2.2.2.1.4. Dimensions- and volume of the catalytic converter(s):
 - 2.2.2.1.5. Type of catalytic action:
 - 2.2.2.1.6. Total charge of precious metals:
 - 2.2.2.1.7. Relative concentration:
 - 2.2.2.1.8. Substrate (structure and material):
 - 2.2.2.1.9. Cell density:
 - 2.2.2.1.10. Type of casing for the catalytic converter(s):
 - 2.2.2.1.11. Location of the catalytic converter(s) (place(s) and maximum/minimum distance(s) from engine):
 - 2.2.2.1.12. Normal operating range (K):
 - 2.2.2.1.13. Consumable reagent (where appropriate):
 - 2.2.2.1.13.1. Type and concentration of reagent needed for catalytic action:
 - 2.2.2.1.13.2. Normal operational temperature range of reagent:
 - 2.2.2.1.13.3. International standard (where appropriate):
 - 2.2.2.1.14. NO_x sensor: yes/no ⁽¹⁾
 - 2.2.2.2. Oxygen sensor: yes/no ⁽¹⁾
 - 2.2.2.2.1. Make(s):
 - 2.2.2.2.2. Type:
 - 2.2.2.2.3. Location:
 - 2.2.2.3. Air injection: yes/no ⁽¹⁾
 - 2.2.2.3.1. Type (pulse air, air pump, etc.):
 - 2.2.2.4. EGR: yes/no ⁽¹⁾
 - 2.2.2.4.1. Characteristics (cooled/uncooled, high pressure/low pressure, etc.):
 - 2.2.2.5. Particulate trap: yes/no ⁽¹⁾
 - 2.2.2.5.1. Dimensions and capacity of the particulate trap:
 - 2.2.2.5.2. Type and design of the particulate trap:

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- 2.2.2.5.3. Location (place(s) and maximum/minimum distance(s) from engine):
- 2.2.2.5.4. Method or system of regeneration, description and/or drawing:
- 2.2.2.5.5. Normal operating temperature (K) and pressure (kPa) range:
- 2.2.2.6. Other systems: yes/no ⁽¹⁾
- 2.2.2.6.1. Description and operation:

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- 2.3. Fuel feed
 - 2.3.1. Feed pump
 - Pressure ⁽²⁾ or characteristic diagram: kPa
 - 2.3.2. Injection system
 - 2.3.2.1. Pump
 - 2.3.2.1.1. Make(s):
 - 2.3.2.1.2. Type(s):
 - 2.3.2.1.3. Delivery: mm³ ⁽²⁾ per stroke or cycle at pump speed of: r/min (rated) and r/min (maximum torque), respectively, or characteristic diagram
State which method is used: on engine/on pump bench ⁽¹⁾
 - 2.3.2.1.4. Injection advance
 - 2.3.2.1.4.1. Injection advance curve ⁽²⁾:
 - 2.3.2.1.4.2. Timing ⁽²⁾:
 - 2.3.2.2. Injection piping
 - 2.3.2.2.1. Length: mm
 - 2.3.2.2.2. Internal diameter: mm
 - 2.3.2.3. Injector(s)
 - 2.3.2.3.1. Make(s):
 - 2.3.2.3.2. Type(s):
 - 2.3.2.3.3. Opening pressure ⁽²⁾ or characteristic diagram:
 - 2.3.2.4. Governor
 - 2.3.2.4.1. Make(s):
 - 2.3.2.4.2. Type(s):
 - 2.3.2.4.3. Speed at which cut-off starts under full load ⁽²⁾: r/min
 - 2.3.2.4.4. Maximum no-load speed ⁽²⁾: r/min
 - 2.3.2.4.5. Idling speed ⁽²⁾: r/min
- 2.3.3. Cold-start system
 - 2.3.3.1. Make(s):
 - 2.3.3.2. Type(s):
 - 2.3.3.3. Description:

▼ **M1**

- ▶⁽⁴⁾ 2.4. Valve timing
 - 2.4.1. Maximum lift and angles of opening and closing in relation to dead centres or equivalent data:
 - 2.4.2. Reference and/or setting ranges ⁽¹⁾
 - 2.4.3. Variable valve timing system (if applicable and where intake and/or exhaust)
 - 2.4.3.1. Type: continuous or on/off ⁽¹⁾
 - 2.4.3.2. Cam phase shift angle:
 - 2.5. Porting configuration
 - 2.5.1. Position, size and number:
 - 2.6. Electronic control functions

If the engine features electronically controlled functions, the information concerning their performance must be provided including:

 - 2.6.1. Make:
 - 2.6.2. Type:
 - 2.6.3. Part Number:
 - 2.6.4. Location of engine electronic control unit:
 - 2.6.4.1. What does it sense:
 - 2.6.4.2. What does it control:

SECTION 3 COMPRESSION-IGNITION ENGINE FAMILY

- 3. **Essential characteristics of the engine family**
 - 3.1. List of engine types within a family
 - 3.1.1. Name of engine family:
 - 3.1.2. Specification of engine types within this family:

▶ ⁽¹⁾ **M7**

▼ **M7**

	Parent engine (*)	Engines within family (**)			
Engine type					
No of cylinders					
Rated speed (min ⁻¹)					
Fuel delivery per stroke (mm ³) for diesel engines, fuel flow (g/h) for petrol engines, at rated net power					
Rated net power (kW)					
Maximum power speed (min ⁻¹)					
Maximum net power (kW)					
Maximum torque speed (min ⁻¹)					
Fuel delivery per stroke (mm ³) for diesel engines, fuel flow (g/h) for petrol engines, at maximum torque					
Maximum torque (Nm)					
Low idle speed (min ⁻¹)					
Cylinder displacement (in % of parent engine)	100				

(*) For full details see Section 2.
 (**) For full details see Section 4.

▼ **M1**

SECTION 4 ENGINE TYPE

4. **Essential characteristics of the engine type**

- 4.1. Description of the engine
- 4.1.1. Manufacturer:
- 4.1.2. Manufacturer's engine code as affixed to engines:
- 4.1.3. Cycle: four stroke/two stroke⁽¹⁾
- 4.1.4. Bore: mm
- 4.1.5. Stroke: mm
- 4.1.6. Number and arrangement of cylinders:
- 4.1.7. Swept volume: cm³
- 4.1.8. Rated speed: r/min
- 4.1.9. Peak torque speed: r/min
- 4.1.10. Compression ratio⁽²⁾:
- 4.1.11. Combustion system:
- 4.1.12. Drawing(s) of combustion chamber and piston crown:
- 4.1.13. Minimum cross sectional area of inlet and outlet ports:
- 4.1.14. Cooling system
- 4.1.14.1. Coolant
- 4.1.14.1.1. Nature of coolant:
- 4.1.14.1.2. Circulating pump(s): yes/no⁽¹⁾
- 4.1.14.1.3. Characteristics or make(s) and type(s) (if applicable):
- 4.1.14.1.4. Drive ratio(s) (if applicable):
- 4.1.14.2. Air
- 4.1.14.2.1. Blower: yes/no⁽¹⁾
- 4.1.14.2.2. Characteristics or make(s) and type(s) (if applicable):
- 4.1.14.2.3. Drive ratio(s) (if applicable):
- 4.1.15. Temperature permitted by the manufacturer:
- 4.1.15.1. Liquid cooling: maximum temperature at outlet: K
- 4.1.15.2. Air cooling: reference point:
- Maximum temperature at reference point: K
- 4.1.15.3. Maximum charge-air temperature at the intercooler outlet (if applicable): K
- 4.1.15.4. Maximum exhaust temperature at the point in the exhaust pipe(s) adjacent to the outer flange(s) of the exhaust manifold(s): K

▼ M1

- 4.1.15.5. Lubricant temperature: minimum: K maximum: K
- 4.1.16. Pressure charger: yes/no ⁽¹⁾
- 4.1.16.1. Make:
- 4.1.16.2. Type:
- 4.1.16.3. Description of the system (e.g. maximum charge pressure, waste-gate, if applicable):
- 4.1.16.4. Intercooler: yes/no ⁽¹⁾
- 4.1.17. Intake system: maximum allowable intake depression at rated engine speed and at 100 % load: kPa
- 4.1.18. Exhaust system: maximum permissible exhaust back pressure at rated engine speed and at 100 % load: kPa

▼ M7

- 4.2. Measures taken against air pollution
- 4.2.1. Device for recycling crankcase gases: yes/no ⁽¹⁾
- 4.2.2. Additional anti-pollution devices (if any, and if not covered by another heading)
- 4.2.2.1. Catalytic converter: yes/no ⁽¹⁾
- 4.2.2.1.1. Make(s):
- 4.2.2.1.2. Type(s):
- 4.2.2.1.3. Number of catalytic converters and elements
- 4.2.2.1.4. Dimensions- and volume of the catalytic converter(s):
- 4.2.2.1.5. Type of catalytic action:
- 4.2.2.1.6. Total charge of precious metals:
- 4.2.2.1.7. Relative concentration:
- 4.2.2.1.8. Substrate (structure and material):
- 4.2.2.1.9. Cell density:
- 4.2.2.1.10. Type of casing for the catalytic converter(s):
- 4.2.2.1.11. Location of the catalytic converter(s) (place(s) and maximum/minimum distance(s) from engine):
- 4.2.2.1.12. Normal operating range (K):
- 4.2.2.1.13. Consumable reagent (where appropriate):
- 4.2.2.1.13.1. Type and concentration of reagent needed for catalytic action:
- 4.2.2.1.13.2. Normal operational temperature range of reagent:
- 4.2.2.1.13.3. International standard (where appropriate):
- 4.2.2.1.14. NO_x sensor: yes/no ⁽¹⁾
- 4.2.2.2. Oxygen sensor: yes/no ⁽¹⁾
- 4.2.2.2.1. Make(s):
- 4.2.2.2.2. Type:

▼ M7

- 4.2.2.2.3. Location:
- 4.2.2.3. Air injection: yes/no ⁽¹⁾
- 4.2.2.3.1. Type (pulse air, air pump, etc.):
- 4.2.2.4. EGR: yes/no ⁽¹⁾
- 4.2.2.4.1. Characteristics (cooled/uncooled, high pressure/low pressure, etc.):
- 4.2.2.5. Particulate trap: yes/no ⁽¹⁾
- 4.2.2.5.1. Dimensions and capacity of the particulate trap:
- 4.2.2.5.2. Type and design of the particulate trap:
- 4.2.2.5.3. Location (place(s) and maximum/minimum distance(s) from engine):
- 4.2.2.5.4. Method or system of regeneration, description and/or drawing:
- 4.2.2.5.5. Normal operating temperature (K) and pressure (kPa) range:
- 4.2.2.6. Other systems: yes/no ⁽¹⁾
- 4.2.2.6.1. Description and operation:

▼ M1

- 4.3. Fuel feed
- 4.3.1. Feed pump
 - Pressure ⁽²⁾ or characteristic diagram: kPa
- 4.3.2. Injection system
 - 4.3.2.1. Pump
 - 4.3.2.1.1. Make(s):
 - 4.3.2.1.2. Type(s):
 - 4.3.2.1.3. Delivery: mm³ ⁽²⁾ per stroke or cycle at pump speed of: r/min (rated) and r/min (maximum torque) respectively, or characteristic diagram
State which method used: on engine/on pump bench ⁽¹⁾
 - 4.3.2.1.4. Injection advance
 - 4.3.2.1.4.1. Injection advance curve ⁽²⁾:
 - 4.3.2.1.4.2. Timing ⁽²⁾:
 - 4.3.2.2. Injection piping
 - 4.3.2.2.1. Length: mm
 - 4.3.2.2.2. Internal diameter: mm
 - 4.3.2.3. Injector(s)
 - 4.3.2.3.1. Make(s):
 - 4.3.2.3.2. Type(s):
 - 4.3.2.3.3. Opening pressure ⁽²⁾ or characteristic diagram ⁽¹⁾:
 - 4.3.2.4. Governor(s)

▼ **M1**

- 4.3.2.4.1. Make(s):
- 4.3.2.4.2. Type(s):
- 4.3.2.4.3. Speed at which cut-off starts under full load ⁽²⁾: r/min
- 4.3.2.4.4. Maximum no-load speed ⁽²⁾: r/min
- 4.3.2.4.5. Idling speed ⁽²⁾: r/min
- 4.3.3. Cold-start system
- 4.3.3.1. Make(s):
- 4.3.3.2. Type(s):
- 4.3.3.3. Description:
- ⁽¹⁾ 4. Valve timing
- 4.4.1. Maximum lift and angles of opening and closing in relation to dead centres or equivalent data:
- 4.4.2. Reference and/or setting ranges ⁽¹⁾:
- 4.4.3. Variable valve timing system (if applicable and where intake and/or exhaust)
- 4.4.3.1. Type: continuous or on/off ⁽¹⁾
- 4.4.3.2. Cam phase shift angle:
- 4.5. Porting configuration
- 4.5.1. Position, size and number:
- 4.6. Electronic command functions
- If the engine features electronically controlled functions, information concerning their performance must be provided including:
- 4.6.1. Make:
- 4.6.2. Type:
- 4.6.3. Part number:
- 4.6.4. Location of engine electronic control unit:
- 4.6.4.1. What does it sense:
- 4.6.4.2. What does it control:

⁽¹⁾ Delete where not applicable.

▼ B

Appendix 2

SPECIMEN

(Maximum format A4 (210 x 297 mm))

EC TYPE-APPROVAL CERTIFICATE FOR A SEPARATE TECHNICAL UNIT

Stamp of administration

Communication concerning the

- component type-approval⁽¹⁾
- extension of component type-approval⁽¹⁾
- refusal of component type-approval⁽¹⁾
- withdrawal of component type-approval⁽¹⁾

pursuant to Directive .../.../EC of a compression-ignition engine type or family as a separate technical unit that is intended to power tractors, in terms of the pollutants emitted.

EC component type-approval No:

Extension No⁽²⁾:

Reason for extension⁽²⁾:

SECTION 1

0. General

0.1. Make (name of undertaking):

0.2. Name and address of the manufacturer (or where appropriate of his agent) of the parent engine type and (where appropriate) of the engine types within the family⁽¹⁾:

0.3. Manufacturer's type coding as marked on the engine(s):

Location:

Method of affixing:

0.4. Location, coding and method of affixing of the type engine identification number:

0.5. Location and method of affixing of the EC component type-approval mark:

0.6. Address(es) of assembly plant(s):

▼ B

SECTION II

- 1. Restriction on use (if any):
- 1.1. Particular conditions to be met when fitting the engine(s) to the tractor
- 1.1.1. Maximum permissible intake depression: kPa
- 1.1.2. Maximum permissible back pressure: kPa
- 2.1. Technical service responsible for carrying out the type-approval tests:
- 2.2. Date of test report:
- 2.3. Number of test report:

▼ M7

- 2.4. Emission results of the engine/parent engine ⁽¹⁾
- 2.4.1. Information concerning the conduct of the NRSC test
Deterioration Factor (DF): calculated/fixed ⁽¹⁾

Specify the DF values and the emission results in the following table:

NRSC test						
DF mult/add ⁽¹⁾	CO	HC	NO _x	HC+NO _x	PM	
Emissions	CO (g/kWh)	HC (g/kWh)	NO _x (g/kWh)	HC+NO _x (g/kWh)	PM (g/kWh)	CO ₂ (g/kWh)
Test result						
Final test result with DF						

Additional control area test points (if applicable)						
Emissions at test point	Engine speed	Load (%)	CO (g/kWh)	HC (g/kWh)	NO _x (g/kWh)	PM (g/kWh)
Test result 1						
Test result 2						
Test result 3						

- 2.4.1.2. Sampling system used for the NRSC test:
- 2.4.1.2.1. Gaseous emissions (*):
- 2.4.1.2.2. PM (*):
- 2.4.1.2.3. Method: single/multiple filter ⁽¹⁾
- 2.4.2. Information concerning the conduct of the NRTC test (if applicable):
- 2.4.2.1. Emission results of the engine/parent engine
Deterioration Factor (DF): calculated/fixed ⁽¹⁾
Specify the DF values and the emission results in the following table:

(*) Indicate the figure number of the system used as set out in Section 1 of Annex VI to Directive 97/68/EC.
⁽¹⁾ Delete where not applicable.

▼ **M7**

Regeneration related data may be reported for Stage IV engines.

NRTC test						
DF mult/add ⁽¹⁾	CO	HC	NO _x	HC+NO _x	PM	
Emissions	CO (g/kWh)	HC (g/kWh)	NO _x (g/kWh)	HC+NO _x (g/kWh)	PM (g/kWh)	
Cold start						
Emissions	CO (g/kWh)	HC (g/kWh)	NO _x (g/kWh)	HC+NO _x (g/kWh)	PM (g/kWh)	CO ₂ (g/kWh)
Hot start w/o regeneration						
Hot start with regeneration						
kr,u (mult/add) ⁽¹⁾						
kr,d (mult/add) ⁽¹⁾						
Weighted test result						
Final test result with DF						

Cycle work for hot start w/o regeneration kWh

2.4.2.2. Sampling system used for the NRTC test:

Gaseous emissions (*):

PM (*):

Method: single/multiple filter ⁽¹⁾

▼ **B**

3. The undersigned hereby certifies the accuracy of the manufacturer's description of the engine type/parent engine within the family⁽¹⁾ given above and that the test results set out in the type-approval file are correct.

Component type-approval is granted/refused/withdrawn⁽¹⁾

Place:

Date:

Signature:

Annex:

Component type-approval file:

(*) Indicate the figure number of the system used as set out in Section 1 of Annex VI to Directive 97/68/EC.

⁽¹⁾ Delete where not applicable.

⁽²⁾ Specify tolerance.

*Appendix 3***Marking of engines**

1. Any engine approved as a separate technical unit must bear:
 - 1.1. the trade mark or trade name of the engine's manufacturer;
 - 1.2. the engine type, and if applicable engine family, and a unique engine identification number;
 - 1.3. the EC type-approval mark in accordance with Appendix 5 of this Annex.
2. These marks must last throughout the useful life of the engine and remain clearly legible and indelible. If labels or plates are used, they must be affixed in such a way that they too last throughout the useful life of the engine, and the labels/plates cannot be removed without destroying or defacing them.
3. The marks must be secured to an engine part that is necessary for normal engine operation and not normally requiring replacement during engine life.

These marks must be located so as to be readily visible to the average person once the engine has been fitted to the tractor, together with all the accessories needed for engine operation. If a bonnet is to be removed in order to make the mark visible, this requirement shall be considered to have been met if removal of that bonnet is simple and does not require the use of a tool.

In case of doubt concerning the meeting of this requirement, it shall be considered to have been met if an additional mark containing at least the engine identification number and the name, trade name or logo of the manufacturer has been added.

That additional mark shall be affixed to, or next to, a major component that would not normally have to be replaced during the service life of the engine, and be easily accessible, without the assistance of tools, during routine maintenance operations; otherwise, it must be located at a distance from the original mark on the engine crankcase. The original mark and, where appropriate, the additional mark shall both be clearly visible once all of the accessories needed for the operation of the engine have been fitted. A bonnet meeting the requirements set out in the above paragraph shall be authorised. The additional mark shall be affixed in a durable manner preferably directly to the topside of the engine, for example by means of an engraving, or a sticker or plate that meets the requirements of Item 2.

4. The engines must be classified by means of their identification numbers in such a way that the production sequence can be determined unambiguously.
5. Before leaving the production line, the engines must bear all of the required marks.
6. The exact location of the engine marks shall be declared in the information document, in accordance with Annexes I and II.

▼ B*Appendix 4***Numbering**

1. The EC type-approval number shall consist of five sections, separated by the sign ‘*’:

Section 1	<p>A lower-case letter ‘e’ followed by the distinguishing number of the Member State which has granted the type-approval:</p> <p>‘1’ for Germany ‘2’ for France ‘3’ for Italy ‘4’ for the Netherlands ‘5’ for Sweden ‘6’ for Belgium ▶ A1 ‘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 ▶ M2 19 for Romania ◀ ▶ A1 ‘20’ for Poland ◀ ‘21’ for Portugal ‘23’ for Greece ‘24’ for Ireland ▶ M6 ‘25’ for Croatia ◀ ▶ A1 ‘26’ for Slovenia ‘27’ for Slovakia ‘29’ for Estonia ‘32’ for Latvia ▶ M2 34 for Bulgaria ◀ ‘36’ for Lithuania ‘CY’ for Cyprus ‘MT’ for Malta ◀</p>
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▼ M3

Section 2	The number of the base Directive followed by a letter A for stage I, letter B for stage II, letter C for stage IIIA, letter D for stage IIIB and letter E for stage IV
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▼ B

Section 3	The number of the latest amending Directive applicable to the approval. If a Directive contains different implementation dates referring to different technical standards, an alphabetical character shall be added in order to specify the standard in accordance with which the approval was granted
Section 4	A four-digit sequential number (with leading zeros as applicable) to denote the base approval number. The sequence shall start from 0001 for each base Directive
Section 5	A two-digit sequential number (with leading zeros as applicable) to denote the extension. The sequence shall start from 00 for each approval number

▼B

2. Example of the third approval by France according to this Directive meeting the requirements of stage I of this Directive:

e2*NN/NN ⁽¹⁾ A*00/00*0003*00

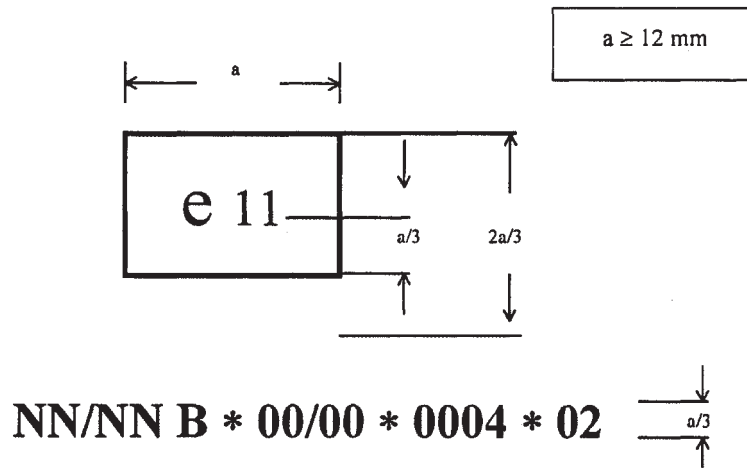
3. Example of the second extension to the fourth approval issued by the United Kingdom according to this Directive meeting the requirements of stage II of this Directive:

e11*NN/NN ⁽¹⁾ B*00/00*0004*02

⁽¹⁾ NN/NN = the number of these Directives.

▼B*Appendix 5***EC type-approval mark**

1. The EC type-approval mark will consist of a rectangle surrounding the lower case letter 'e' followed by the distinguishing number or letters of Sections 2 to 5 of the EC type-approval number.
2. Example of the EC type-approval mark:





ANNEX II

REQUIREMENTS FOR THE EC TYPE-APPROVAL OF A TRACTOR TYPE EQUIPPED WITH A COMPRESSION-IGNITION ENGINE IN RESPECT OF THE POLLUTANTS EMITTED

0. GENERAL

Unless otherwise defined by this Directive, the appropriate definitions, symbols and abbreviations contained in Directive 97/68/EC are applicable.

1. DEFINITIONS

— ‘Type of tractor in terms of the pollutants emitted’ means tractors which display no essential differences with regard to the characteristics as defined in Appendix 1 to this Annex,

— ‘Pollutants emitted’ means gaseous pollutants (carbon monoxide, hydrocarbons, and nitrogen oxides) and polluting particulates.

2. APPLICATION FOR EC TYPE-APPROVAL FOR A TRACTOR TYPE

2.1. *Application for the EC type-approval of a tractor type in respect of its engine*

2.1.1. The application for type-approval of a tractor type in terms of the pollutants emitted shall be made by the tractor manufacturer or his agent.

2.1.2. It shall be accompanied by the information document, completed in triplicate, a specimen for which is provided in Appendix 1 to this Annex.

2.1.3. The tractor engine conforming to the ‘engine type’ or ‘parent engine’ characteristics described in Appendix 1 to this Annex shall be submitted to the technical service responsible for conducting the approval tests.

2.2. *Application for the EC type-approval of a tractor type with an approved engine*

2.2.1. The application for type-approval of a tractor type in terms of the pollutants emitted shall be made by the tractor manufacturer or his agent.

2.2.2. It shall be accompanied by the information document, completed in triplicate, a specimen for which is provided in Appendix 1 to this Annex and a copy of the EC type-approval certificate for the engine or engine family, if applicable, for the separate technical unit which is installed in the tractor type.

3. SPECIFICATIONS AND TESTS

3.1. *General*

The provisions of Directive 97/68/EC, Annex I, Section 4, Annexes III, IV and V are applicable.

3.2. *Engine installation on the vehicle*

The engine installation on the vehicle shall comply with the following characteristics in respect to the type-approval of the engine:

▼B

- 3.2.1. intake depression shall not exceed that specified for the type-approved engine,
- 3.2.2. exhaust back pressure shall not exceed that specified for the type-approved engine.
- 3.3. Those tractor components which may affect the pollutants emitted shall be designed, built and assembled in such a way as to meet the technical requirements of this Directive under the tractor's normal operating conditions and despite any vibrations to which it could be subjected.

4. APPROVAL

Any tractor type fitted with an engine which has been issued with a certificate of approval in accordance with Annex I or the provisions mentioned in Annex III shall be issued with a type-approval certificate in accordance with Appendix 2 to this Annex.

5. ENGINE MARKING

The engine shall be marked in accordance with the requirements of Appendix 3 to Annex I. The EC type-approval identification number must meet the requirements of Appendices 4 and 5 to Annex I.

6. CONFORMITY OF PRODUCTION

Without prejudice to the requirements of Article 8 of Directive 74/150/EEC, conformity of production shall be checked in accordance with the provisions of Section 5 of Annex I to Directive 97/68/EC.

▼ B*Appendix 1***Information document****Concerning the EC type-approval of a type of tractor equipped with a compression-ignition engine in terms of the pollutants emitted**

The information set out below shall be supplied in triplicate and be accompanied by a list of enclosures. Any drawings needed shall be supplied to an appropriate scale and with sufficient details in A4 format or in a folder of this format. Photographs shall, where needed, show sufficient detail

SECTION 1 GENERAL**1. Tractor type**

- 1.1. Make(s) (trade name of manufacturer):
- 1.2. Type and commercial description of the tractor:
- 1.3. Manufacturer's type codes if marked on the tractor and method of affixing:
- 1.3.1. Location, coding and method of affixing of the tractor identification number:
- 1.3.2. Location and method of affixing of the EC type-approval mark:
- 1.4. Name and address of manufacturer:
- 1.5. Address(es) of assembly plant(s):

SECTION 2 TRACTOR TYPE**2. Essential characteristics of the tractor type**

- 2.1. Description of the compression-ignition engine
- 2.1.1. Manufacturer:
- 2.1.2. Manufacturer's code as affixed to engine:
- 2.1.3. Cycle: four stroke/two stroke⁽¹⁾
- 2.1.4. Bore: mm
- 2.1.5. Stroke: mm
- 2.1.6. Number and arrangement of cylinders: cm³

▼ B

- 2.1.7. Swept volume: cm³
- 2.1.8. Rated speed: r/min
- 2.1.9. Peak torque speed: r/min
- 2.1.10. Compression ratio ⁽²⁾:
- 2.1.11. Combustion system:
- 2.1.12. Drawing(s) of combustion chamber and piston crown:
- 2.1.13. Minimum cross sectional area of inlet and outlet ports:
- 2.1.14. Cooling system
- 2.1.14.1. Coolant
- 2.1.14.1.1. Nature of coolant:
- 2.1.14.1.2. Circulating pump(s): yes/no ⁽¹⁾
- 2.1.14.1.3. Characteristics or make(s) and type(s) (if applicable):
- 2.1.14.1.4. Drive ratio(s) (if applicable):
- 2.1.14.2. Air
- 2.1.14.2.1. Blower: yes/no ⁽¹⁾
- 2.1.14.2.2. Characteristics or make(s) and type(s) (if applicable):
- 2.1.14.2.3. Drive ratio(s) (if applicable):
- 2.1.15. Temperature permitted by the manufacturer:
- 2.1.15.1. Liquid cooling: maximum temperature at outlet: K
- 2.1.15.2. Air cooling: reference point:
- Maximum temperature at reference point: K
- 2.1.15.3. Maximum charge air temperature at the intercooler outlet (if applicable): K
- 2.1.15.4. Maximum exhaust temperature at the point in the exhaust pipe(s) adjacent to the outer flange(s) of the exhaust manifold(s): K
- 2.1.15.5. Lubricant temperature: minimum: K maximum: K

▼ B

- 2.1.16. Pressure charger: yes/no ⁽¹⁾
- 2.1.16.1. Make:
- 2.1.16.2. Type:
- 2.1.16.3. Description of the system (e.g. maximum charge pressure, waste-gate, if applicable):
- 2.1.16.4. Intercooler: yes/no ⁽¹⁾
- ⁽¹⁾2.1.17. Intake system: maximum allowable intake depression at rated engine speed and at 100 % load:
..... kPa
- 2.1.18. Exhaust system: maximum permissible exhaust back pressure at rated engine speed and at 100 %
load: kPa◀

▶ ⁽¹⁾ M1**▼ M7**

- 2.2. Measures taken against air pollution
- 2.2.1. Device for recycling crankcase gases: yes/no ⁽¹⁾
- 2.2.2. Additional anti-pollution devices (if any, and if not covered by another heading)
- 2.2.2.1. Catalytic converter: yes/no ⁽¹⁾
- 2.2.2.1.1. Make(s):
- 2.2.2.1.2. Type(s):
- 2.2.2.1.3. Number of catalytic converters and elements
- 2.2.2.1.4. Dimensions- and volume of the catalytic converter(s):
- 2.2.2.1.5. Type of catalytic action:
- 2.2.2.1.6. Total charge of precious metals:
- 2.2.2.1.7. Relative concentration:
- 2.2.2.1.8. Substrate (structure and material):
- 2.2.2.1.9. Cell density:
- 2.2.2.1.10. Type of casing for the catalytic converter(s):
- 2.2.2.1.11. Location of the catalytic converter(s) (place(s) and maximum/minimum distance(s) from engine):
- 2.2.2.1.12. Normal operating range (K):
- 2.2.2.1.13. Consumable reagent (where appropriate):
- 2.2.2.1.13.1. Type and concentration of reagent needed for catalytic action:
- 2.2.2.1.13.2. Normal operational temperature range of reagent:
- 2.2.2.1.13.3. International standard (where appropriate):
- 2.2.2.1.14. NO_x sensor: yes/no ⁽¹⁾

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- 2.2.2.2. Oxygen sensor: yes/no ⁽¹⁾
- 2.2.2.2.1. Make(s):
- 2.2.2.2.2. Type:
- 2.2.2.2.3. Location:
- 2.2.2.3. Air injection: yes/no ⁽¹⁾
- 2.2.2.3.1. Type (pulse air, air pump, etc.):
- 2.2.2.4. EGR: yes/no ⁽¹⁾
- 2.2.2.4.1. Characteristics (cooled/uncooled, high pressure/low pressure, etc.):
- 2.2.2.5. Particulate trap: yes/no ⁽¹⁾
- 2.2.2.5.1. Dimensions and capacity of the particulate trap:
- 2.2.2.5.2. Type and design of the particulate trap:
- 2.2.2.5.3. Location (place(s) and maximum/minimum distance(s) from engine):
- 2.2.2.5.4. Method or system of regeneration, description and/or drawing:
- 2.2.2.5.5. Normal operating temperature (K) and pressure (kPa) range:
- 2.2.2.6. Other systems: yes/no ⁽¹⁾
- 2.2.2.6.1. Description and operation:

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- 2.3. **Fuel feed**
- 2.3.1. **Feed pump**
- Pressure ⁽²⁾ or characteristic diagram: kPa
- 2.3.2. **Injection system**
- 2.3.2.1. **Pump**
- 2.3.2.1.1. **Make(s):**
- 2.3.2.1.2. **Type(s):**
- 2.3.2.1.3. **Delivery:** and mm³(²) per stroke or cycle at pump speed of: r/min (rated), and r/min (maximum torque) respectively, or characteristic diagram.
State which method used: on engine/on pump bench ⁽¹⁾
- 2.3.2.1.4. **Injection advance**
- 2.3.2.1.4.1. **Injection advance curve** ⁽²⁾
- 2.3.2.1.4.2. **Timing** ⁽²⁾:

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- 2.3.2.2. Injection piping
- 2.3.2.2.1. Length mm
- 2.3.2.2.2. Internal diameter: mm
- 2.3.2.3. Injector(s)
- 2.3.2.3.1. Make(s):
- 2.3.2.3.2. Type(s):
- 2.3.2.3.3. Opening pressure ^(?) or characteristic diagram ⁽¹⁾:
- 2.3.2.4. Governor
- 2.3.2.4.1. Make(s):
- 2.3.2.4.2. Type(s):
- 2.3.2.4.3. Speed at which cut-off starts under full load ^(?): r/min
- 2.3.2.4.4. Maximum no-load speed ^(?): r/min
- 2.3.2.4.5. Idling speed ^(?): r/min
- 2.3.3. Cold-start system
- 2.3.3.1. Make(s):
- 2.3.3.2. Type(s):
- 2.3.3.3. Description:
- ⁽¹⁾2.4. Valve timing
- 2.4.1. Maximum lift and angles of opening and closing in relation to dead centres or equivalent data:
- 2.4.2. Reference and/or setting ranges ⁽¹⁾:
- 2.4.3. Variable valve timing system (if applicable and where intake and/or exhaust)
- 2.4.3.1. Type: continuous or on/off ⁽¹⁾
- 2.4.3.2. Cam phase shift angle: ◀
- 2.5. Electronic command functions
- If the engine features electronically controlled functions, the information concerning their performance should be provided including:

⁽¹⁾ Delete where not applicable.

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- 2.5.1. Make:
- 2.5.2. Type:
- 2.5.3. Part No:
- 2.5.4. Location of engine electronic control unit:
- 2.5.4.1. What does it sense:
- 2.5.4.2. What does it control:
- ▶⁽¹⁾2.6. Porting configuration
- 2.6.1. Position, size and number:◀

(1) Delete where not applicable.
(2) Specify the tolerance.

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Appendix 2

SPECIMEN

(Maximum format A4 (210 x 297 mm))

EC TYPE-APPROVAL CERTIFICATE

Stamp of administration

Communication concerning the:

- type-approval⁽¹⁾
- extension of type-approval⁽¹⁾
- refusal of type-approval⁽¹⁾
- withdrawal of type-approval,⁽¹⁾

of a type of tractor equipped with a compression-ignition engine pursuant to Directive .../.../EC, on pollutant emissions.

EC type-approval No:

Extension No⁽²⁾:

Reason for extension⁽²⁾:

SECTION I

0. General

0.1. Make(s) (name of undertaking)

0.2. Name and address of the manufacturer (or if appropriate of his agent) of the type of tractor:
.....

0.3. Manufacturer's type code as marked on the tractor:

Location:

Method of affixing:

0.4. Location, code and method of affixing of the tractor identification number:
.....

0.5. Location and method of affixing of the EC type-approval mark:
.....

0.6. Name(s) and address(es) of assembly plant(s):

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SECTION II

- 1. Restrictions on use of engine (if any):
- 1.1. Particular conditions to be met when fitting the engine(s) to the tractor:
- 1.1.1. Maximum permissible intake depression: kPa
- 1.1.2. Maximum permissible back pressure: kPa
- 2. The engine or tractor has been subjected to specific component type-approval YES/NO⁽¹⁾
- 2.1. If YES
- 2.1.1. Reference Directives or Regulations: Directive 97/68/EC, or where appropriate Directive 88/77/EEC / UN-ECE Regulation No 49.02 / UN-ECE Regulation No 96
- 2.1.2. Component type-approval No
and attach the component type-approval certificate for the engine type or family concerned
- 2.2. If NO
- 2.2.1. Technical service responsible for carrying out the component type-approval tests:
- 2.2.2. Date of test report:
- 2.2.3. No of test report:

►⁽¹⁾ 2.2.4. Test results

Measured in accordance with the requirements of Directive 97/68/EC

CO (g/kWh)	HC (g/kWh)	NO _x (g/kWh)	HC+NO _x (g/kWh)	Particulates (g/kWh)

- 2.3. Tractor components which may affect the pollutants emitted (indicate, if relevant, the nature of effect):

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3. The undersigned hereby certifies the accuracy of the manufacturer's description of the tractor type given above and that the test results mentioned in the type-approval file are correct.

Type-approval is granted/refused/withdrawn⁽¹⁾

Place:

Date:

Signature:

Annex:

Type-approval file:

—

⁽¹⁾ Delete where appropriate.
⁽²⁾ Where appropriate.

▼M7*ANNEX III***RECOGNITION OF ALTERNATIVE TYPE-APPROVALS**

The following type-approvals and, where applicable, the pertaining approval marks are recognised as being equivalent to an approval to this Directive:

1. For engines categories H, I, J and K (stage IIIA) as specified in Article 9(3a) and (3b) of Directive 97/68/EC, type-approvals in accordance with points 3.1, 3.2 and 3.3 of Annex XII to Directive 97/68/EC.
2. For engines categories L, M, N and P (stage IIIB) as specified in Article 9(3c) of Directive 97/68/EC, type-approvals in accordance with points 4.1, 4.2 and 4.3 of Annex XII to Directive 97/68/EC.
3. For engines categories Q and R (stage IV) as specified in Article 9(3d) of Directive 97/68/EC, type-approvals in accordance with, points 5.1 and 5.2 of Annex XII to Directive 97/68/EC.

▼ **M4***ANNEX IV***PROVISIONS FOR TRACTORS AND ENGINES PLACED ON THE MARKET UNDER THE FLEXIBILITY SCHEME LAID DOWN IN ARTICLE 3a**

1. ACTIONS BY THE TRACTOR MANUFACTURERS

1.1. Except during Stage III B, a tractor manufacturer who wishes to make use of the flexibility scheme shall request permission from the approval authority to place tractors on the market in accordance with the relevant provisions set out in this Annex. The number of tractors shall not exceed the ceilings set out in sections 1.1.1 and 1.1.2. The engines shall meet the requirements referred to in Article 3a.

1.1.1. The number of tractors placed on the market under the flexibility scheme shall, in each engine category, not exceed 20 % of the annual number of tractors placed on the market by the tractor manufacturer with engines in that engine category (calculated as the average of the last five years' sales on the Union market). Where a tractor manufacturer has marketed tractors in the Union for a period of less than five years the average will be calculated based on the actual period for which the tractor manufacturer has marketed tractors in the Union.

1.1.2. As an alternative option to section 1.1.1, the number of tractors placed on the market under the flexibility scheme shall, in each power range, not exceed the following ceilings:

Engine power range P (kW)	Number of tractors
$19 \leq P < 37$	200
$37 \leq P < 75$	150
$75 \leq P < 130$	100
$130 \leq P \leq 560$	50

1.2. During Stage III B, a tractor manufacturer who wishes to make use of the flexibility scheme shall request permission from the approval authority to place tractors on the market in accordance with the relevant provisions set out in this Annex. The number of tractors shall not exceed the ceilings set out in sections 1.2.1 and 1.2.2. The engines shall meet the requirements referred to in Article 3a.

1.2.1. The number of tractors placed on the market under the flexibility scheme shall, in each engine category, not exceed 40 % of the annual number of tractors placed on the market by the tractor manufacturer with engines in that engine category (calculated as the average of the last five years' sales on the Union market). Where a tractor manufacturer has marketed tractors in the Union for a period of less than five years the average will be calculated based on the actual period for which the tractor manufacturer has marketed tractors in the Union.

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- 1.2.2. As an alternative option to section 1.2.1, the number of tractors placed on the market under the flexibility scheme shall, in each power range, not exceed the following ceilings:

Engine power range P (kW)	Number of tractors
$37 \leq P < 56$	200
$56 \leq P < 75$	175
$75 \leq P < 130$	250
$130 \leq P \leq 560$	125

- 1.3. The tractor manufacturer shall include in his application to the approval authority the following information:
- a sample of the labels to be affixed to each tractor in which an engine placed on the market under the flexibility scheme will be installed. The labels shall bear the following text: 'TRACTOR NO ... (sequence of tractors) OF ... (total number of tractors in respective power range) WITH ENGINE NO ... WITH TYPE-APPROVAL (Directive 2000/25/EC) NO ...'; and
 - a sample of the supplementary label to be affixed on the engine bearing the text referred to in section 2.2.
- 1.4. The tractor manufacturer shall provide the approval authority with any necessary information connected with the implementation of the flexibility scheme that the approval authority may request in order to make a decision.
- 1.5. The tractor manufacturer shall file a report every six months to the approval authorities of each Member State where the tractor is placed on the market on the implementation of the flexibility schemes he is using. The report shall include cumulative data on the number of tractors placed on the market under the flexibility scheme, engine and tractor serial numbers, and the Member States where the tractor has been entered into service. This procedure shall be continued as long as a flexibility scheme is still in progress, without any exceptions.

2. ACTIONS BY THE ENGINE MANUFACTURER

- An engine manufacturer may place on the market engines under the flexibility scheme approved in accordance with sections 1 and 3 of this Annex.
- The engine manufacturer shall label those engines with the following text: 'Engine placed on the market under the flexibility scheme' in accordance with the requirements referred to in section 5 of Annex I.

3. ACTIONS BY THE APPROVAL AUTHORITY

The approval authority shall evaluate the content of the flexibility scheme request and the enclosed documents. As a consequence it will inform the tractor manufacturer of its decision as to whether or not to allow use of the flexibility scheme as requested.