

## COMMISSION DIRECTIVE 2005/13/EC

of 21 February 2005

**amending Directive 2000/25/EC of the European Parliament and of the Council concerning the emission of gaseous and particulate pollutants by engines intended to power agricultural or forestry tractors, and amending Annex I to Directive 2003/37/EC of the European Parliament and of the Council concerning the type-approval of agricultural or forestry tractors**

(Text with EEA relevance)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to 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<sup>(1)</sup>, and in particular Articles 6 and 7 thereof,

Having regard to Directive 2003/37/EC of the European Parliament and of the Council of 26 May 2003 on type-approval of agricultural or forestry tractors, their trailers and interchangeable towed machinery, together with their systems, components and separate technical units and repealing Council Directive 74/150/EEC<sup>(2)</sup>, and in particular Article 19(1)(a) thereof,

Whereas:

- (1) 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 particulate pollutants from internal combustion engines to be installed in non-road mobile machinery<sup>(3)</sup> as amended by Directive 2004/26/EC sets out more stringent emission requirements for engines installed in non-road mobile machinery, and introduces three new stages for emission limits.
- (2) Directive 2000/25/EC, which is one of the separate Directives in the framework of the type approval procedure under 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<sup>(4)</sup>, should be aligned with Directive 97/68/EC as amended by Directive 2004/26/EC, in particular as regards the introduction of the flexibility scheme provided for in the latter.

- (3) Annexes I and II to Directive 2000/25/EC need to be adapted, notably to take account of the introduction by Directive 97/68/EC as amended by Directive 2004/26/EC of new emission limits for combined emission of hydrocarbons and oxides of nitrogen. Other changes should be introduced in those annexes to ensure consistency between the provisions on information documents laid down in Directives 2000/25/EC, 97/68/EC and 2003/37/EC. In addition, Annex III to Directive 2000/25/EC needs to be adapted in order to add the alternative type-approvals to be recognised for the new stages III A, III B and IV.
- (4) It is also necessary to adapt Annex I to Directive 2003/37/EC in order to ensure consistency between the provisions on information documents laid down in Directives 2000/25/EC, 97/68/EC and 2003/37/EC. In particular, discrepancies in terminology should be eliminated in the interests of clarity.
- (5) Directives 2000/25/EC and 2003/37/EC should therefore be amended accordingly.
- (6) The measures provided for in this Directive are in accordance with the opinion of the Committee established by Article 20(1) of Directive 2003/37/EC,

HAS ADOPTED THIS DIRECTIVE:

*Article 1*

Directive 2000/25/EC is amended as follows:

1. In Article 1, the following indent is added:

— “replacement engine” means a newly built engine which replaces an engine in a machine and which has been supplied for this purpose only;’

2. In Article 3, the following paragraph is added:

‘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;’

<sup>(1)</sup> OJ L 173, 12.7.2000, p. 1. Directive as amended by the Act of Accession of 2003.

<sup>(2)</sup> OJ L 171, 9.7.2003, p. 1. Directive as amended by Council Directive 2004/66/EC (OJ L 168, 1.5.2004, p. 35).

<sup>(3)</sup> OJ L 59, 27.2.1998, p. 1. Directive as last amended by Directive 2004/26/EC (OJ L 146, 30.4.2004, p. 1).

<sup>(4)</sup> OJ L 84, 28.3.1974, p. 10. Directive as last amended by Regulation (EC) No 807/2003 (OJ L 122, 16.5.2003, p. 36).

3. The following Article 3a is inserted:

*'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 subject to permission being granted by the approval authority, the engine manufacturer may, during the period between two successive limit value stages, place on the market a limited number of engines that comply only with the emission limit value stage immediately preceding the currently applicable stage, or tractors with such engines, provided that he complies with the procedure set out in Annex IV.;

4. Article 4 is amended as follows:

(a) In paragraph 2, the following points (c), (d) and (e) are added:

(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).;

(b) in paragraph 3, the following indents are added:

- '— 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.;

(c) paragraph 5 is replaced by the following:

'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.;

(d) the following paragraphs 6, 7 and 8 are added:

'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.;

5. Annexes I, II and III are amended in accordance with Annex I to this Directive.

6. Annex IV, the text of which is set out in Annex II to this Directive, is added.

*Article 2*

Annex I to Directive 2003/37/EC is amended in accordance with Annex III to this Directive.

*Article 3*

1. Member States shall adopt and publish, by 31 December 2005 at the latest, the laws, regulations and administrative provisions necessary to comply with this Directive. They shall forthwith communicate to the Commission the text of those provisions and a correlation table between those provisions and this Directive.

They shall apply those provisions from 1 January 2006.

When Member States adopt those provisions, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

2. Member States shall communicate to the Commission the texts of the main provisions of national law which they adopt in the field covered by this Directive.

*Article 4*

This Directive shall enter into force on the 20<sup>th</sup> day following its publication in the *Official Journal of the European Union*.

*Article 5*

This Directive is addressed to the Member States.

Done at Brussels, 21 February 2005.

*For the Commission*  
Günter VERHEUGEN  
*Vice-President*

## ANNEX I

Annexes I, II and III to Directive 2000/25/EC are amended as follows:

1. Annex I is amended as follows:

(a) Appendix 1 is replaced by the following:

*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** <sup>(1)</sup> <sup>(2)</sup>
  - 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) <sup>(1)</sup>:
  - 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** <sup>(2)</sup>
  - 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 <sup>(1)</sup>
    - 2.1.4. Bore: ..... mm
    - 2.1.5. Stroke: ..... mm
    - 2.1.6. Number and layout of cylinders: .....
    - 2.1.7. Swept volume: ..... cm<sup>3</sup>

- 2.1.8. Rated speed: ..... r/min
- 2.1.9. Peak-torque speed: ..... r/min
- 2.1.10. Compression ratio (<sup>2</sup>): .....
- 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 (<sup>1</sup>)
- 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 (<sup>1</sup>)
- 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 (<sup>1</sup>)
- 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 (<sup>1</sup>)
- 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

- 2.2. Additional anti-pollution devices (if any, and if not covered by another heading)  
Description and/or <sup>(1)</sup> diagram(s): .....
- 2.3. Fuel feed
- 2.3.1. Feed pump  
Pressure <sup>(2)</sup> 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: ..... mm<sup>3</sup> <sup>(2)</sup> 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 <sup>(1)</sup>
- 2.3.2.1.4. Injection advance
- 2.3.2.1.4.1. Injection advance curve <sup>(2)</sup>: .....
- 2.3.2.1.4.2. Timing <sup>(2)</sup>: .....
- 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 <sup>(2)</sup> 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 <sup>(2)</sup>: ..... r/min
- 2.3.2.4.4. Maximum no-load speed <sup>(2)</sup>: ..... r/min
- 2.3.2.4.5. Idling speed <sup>(2)</sup>: ..... 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: .....

- 2.4. Valve timing
  - 2.4.1. Maximum lift and angles of opening and closing in relation to top dead centre or equivalent data: .....
  - 2.4.2. Reference clearances and/or setting ranges <sup>(1)</sup>
  - 2.4.3. Variable valve timing system (if applicable and where intake and/or exhaust): .....
  - 2.4.3.1. Type: continuous or on/off
  - 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:

	Parent engine				
Engine type					
Number of cylinders					
Rated speed (r/min)					
Fuel delivery per stroke (mm <sup>3</sup> ) at rated speed					
Rated net power (kW)					
Maximum torque speed (r/min)					
Fuel delivery per stroke (mm <sup>3</sup> ) at maximum torque speed					
Maximum torque (Nm)					
Low idle speed (r/min)					
Cylinder swept volume as % of parent engine					100

## 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<sup>(1)</sup>
- 4.1.4. Bore: ..... mm
- 4.1.5. Stroke: ..... mm
- 4.1.6. Number and arrangement of cylinders: .....
- 4.1.7. Swept volume: ..... cm<sup>3</sup>
- 4.1.8. Rated speed: ..... r/min
- 4.1.9. Peak torque speed: ..... r/min
- 4.1.10. Compression ratio<sup>(2)</sup>: .....
- 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<sup>(1)</sup>
- 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<sup>(1)</sup>
- 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



- 4.1.15.5. Lubricant temperature: minimum: ..... K      maximum: ..... K
- 4.1.16. Pressure charger: yes/no <sup>(1)</sup>
- 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 <sup>(1)</sup>
- 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
- 4.2. Additional anti-pollution devices (if any, and if not covered by another heading)  
Description and/or <sup>(1)</sup> diagram(s): .....
- 4.3. Fuel feed
- 4.3.1. Feed pump  
Pressure <sup>(2)</sup> 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: ..... mm<sup>3</sup> <sup>(2)</sup> 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 <sup>(1)</sup>
- 4.3.2.1.4. Injection advance
- 4.3.2.1.4.1. Injection advance curve <sup>(2)</sup>: .....
- 4.3.2.1.4.2. Timing <sup>(2)</sup>: .....
- 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 <sup>(2)</sup> or characteristic diagram <sup>(1)</sup>: .....
- 4.3.2.4. Governor(s)

- 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 <sup>(2)</sup>: ..... r/min
- 4.3.2.4.4. Maximum no-load speed <sup>(2)</sup>: ..... r/min
- 4.3.2.4.5. Idling speed <sup>(2)</sup>: ..... 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: .....
- 4.4. Valve timing
- 4.4.1. Maximum lift and opening and closing angles in relation to top dead centre or equivalent data: .....
- 4.4.2. Reference clearances and/or setting ranges <sup>(1)</sup>: .....
- 4.4.3. Variable valve timing system (if applicable and where intake and/or exhaust)
- 4.4.3.1. Type: continuous or on/off
- 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: .....';

(b) in Appendix 2, section II, subsection 2.4 is replaced by the following:

2.4. Test results

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

CO (g/kWh)	HC (g/kWh)	NO <sub>x</sub> (g/kWh)	HC + NO <sub>x</sub> (g/kWh)	Particulates (g/kWh)

2. Annex II is amended as follows:

(a) Appendix 1 is amended as follows:

(i) section 2, subsections 2.1.17 and 2.1.18 are replaced by the following:

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';

(ii) the following is added:

‘2.6. Porting configuration

2.6.1. Position, size and number’;

(b) in Appendix 2, section 2, subsection 2.2.4, is replaced by the following:

‘2.2.4. Test results

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

CO (g/kWh)	HC (g/kWh)	NO <sub>x</sub> (g/kWh)	HC + NO <sub>x</sub> (g/kWh)	Particulates (g/kWh)

3. Annex III is replaced by the following:

#### ‘ANNEX III

#### RECOGNITION OF ALTERNATIVE TYPE-APPROVALS

1. For stage I the following certificates of type-approvals are recognised to be equivalent for engines of categories A, B and C as defined in Directive 97/68/EC:
  - 1.1. certificates of type-approvals according to Directive 97/68/EC;
  - 1.2. certificates of type-approvals according to Directive 88/77/EEC, complying with the requirements of stage A or B regarding Article 2 and Annex I, Section 6.2.1 of Directive 88/77/EEC as amended by Directive 91/542/EEC, or UN-ECE Regulation 49.02 series of amendments corrigenda 1/2;
  - 1.3. certificates of type-approvals according to UN-ECE Regulation 96.
2. For stage II the following certificates of type-approvals are recognised to be equivalent:
  - 2.1. certificates of type-approvals according to Directive 97/68/EC, stage II for engines of categories D, E, F and G;
  - 2.2. type-approvals to Directive 88/77/EEC as amended by Directive 99/96/EC which are in compliance with stages A, B1, B2 or C provided for in Article 2 and section 6.2.1 of Annex I;
  - 2.3. UN-ECE Regulation 49.03 series of amendments;
  - 2.4. UN-ECE Regulation 96 stage B approvals according to paragraph 5.2.1 of the 01 series of amendments of Regulation 96.
3. For stage III A the following certificates of type-approvals are recognised to be equivalent:
 

Certificates of type-approvals according to Directive 97/68/EC, stage III A for engines of categories H, I, J and K.
4. For stage III B the following certificates of type-approvals are recognised to be equivalent:
 

certificates of type-approvals according to Directive 97/68/EC, stage III B for engines of categories L, M, N and P.
5. For stage IV the following certificates of type-approvals are recognised to be equivalent:
 

certificates of type-approvals according to Directive 97/68/EC, stage IV for engines of categories Q and R.’

## ANNEX II

The following Annex IV is added to Directive 2000/25/EC:

## 'ANNEX IV

**PROVISIONS FOR TRACTORS AND ENGINES PLACED ON THE MARKET UNDER THE FLEXIBILITY SCHEME LAID DOWN IN ARTICLE 3A**

1. ACTIONS BY THE ENGINE AND THE TRACTOR MANUFACTURERS

- 1.1. A tractor manufacturer, who wishes to make use of the flexibility scheme, shall request permission from his approval authority to place or to source from his engine suppliers, in the period between two emissions stages, the quantities of engines described in section 1.2 and 1.3 that do not comply with the current emission limit values, but are approved to the nearest previous stage of emission limits.
- 1.2. The number of engines placed on the market under a flexibility scheme shall, in each engine category, not exceed 20 % of the tractor manufacturer's annual sales of tractors with engines in that engine category (calculated as the average of the latest 5 years sales on the EU market). In the case that a tractor manufacturer has marketed tractors in the EU for a period of less than five years the average will be calculated based on the period for which the tractor manufacturer has marketed tractors in the EU.
- 1.3. As an alternative option to section 1.2, the tractor manufacturer may seek permission for his engine suppliers to place on the market a fixed number of engines under the flexibility scheme. The number of engines in each engine category shall not exceed the following values:

Engine Category	Number of Engines
19-37 kW	200
37-75 kW	150
75-130 kW	100
130-560 kW	50

- 1.4. The tractor manufacturer shall include in his application to an approval authority the following information:
- (a) 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 band) WITH ENGINE NO. ... WITH TYPE APPROVAL (Directive 2000/25/EC) NO ..."; and
- (b) a sample of the supplementary label to be affixed on the engine bearing the text referred to in section 2.2 of this Annex.
- 1.5. The tractor manufacturer shall provide the approval authority with any information connected with the implementation of the flexibility scheme that the approval authority may request necessary to make a decision.
- 1.6. The tractor manufacturer shall file a report every six months to the approval authorities of each Member State, where the tractor or engine is put on the market, on the implementation of the flexibility schemes he is using. The report shall include cumulative data on the number of engines and 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.

2. ACTIONS BY THE ENGINE MANUFACTURER

- 2.1. An engine manufacturer may supply engines to a tractor manufacturer under a flexibility scheme covered by an approval in accordance with section 1 of this annex.
- 2.2. The engine manufacturer must put a label on those engines with the following text: "Engine placed on the market under the flexibility scheme".

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.'

---

## ANNEX III

In Annex I to Directive 2003/37/EC, Model A, section 3 'Engine', is replaced by the following:

3. ENGINE

**Part 1 — General**

- 3.1. *Parent engine/engine type* <sup>(1)</sup> <sup>(2)</sup> <sup>(21)</sup>
- 3.1.1. Make(s) (trade name of manufacturer): .....
- 3.1.2. Type and commercial description of the parent and (if applicable) of the family of engine(s) <sup>(1)</sup>:  
.....
- 3.1.3. Manufacturer's type coding as marked on the engine(s) and method of affixing:  
.....
- 3.1.3.1. Location, coding and method of affixing of the engine type identification number:  
.....
- 3.1.3.2. Location and method of affixing of the EC component type-approval mark: .....
- 3.1.4. Name and address of manufacturer: .....
- 3.1.5. Address(es) of assembly plant(s): .....
- 3.1.6. Operating principle:  
— spark/compression ignition <sup>(1)</sup>  
— direct/indirect injection <sup>(1)</sup>  
— two-four-stroke <sup>(1)</sup>
- 3.1.7. Fuel  
Diesel/petrol/LPB/other <sup>(1)</sup>

**Part 2 — Engine type within the family**

- 3.2. *Essential characteristics of the family's parent engine* <sup>(3)</sup>
- 3.2.1. Description of the compression ignition engine
- 3.2.1.1. Manufacturer: .....
- 3.2.1.2. Manufacturer's engine code as affixed to engines: .....
- 3.2.1.3. Cycle: four stroke/two stroke <sup>(1)</sup>
- 3.2.1.4. Bore: ..... mm
- 3.2.1.5. Stroke: ..... mm
- 3.2.1.6. Number and layout of cylinders: .....
- 3.2.1.7. Swept volume: ..... cm<sup>3</sup>
- 3.2.1.8. Rated speed: ..... r/min

- 3.2.1.9. Peak-torque speed: ..... r/min
- 3.2.1.10. Compression ratio (<sup>2</sup>): .....
- 3.2.1.11. Combustion system description: .....
- 3.2.1.12. Drawing(s) of combustion chamber and piston crown: .....
- 3.2.1.13. Minimum cross-sectional area of inlet and outlet ports: .....
- 3.2.1.14. Cooling system
- 3.2.1.14.1. Coolant
- 3.2.1.14.1.1. Nature of coolant: .....
- 3.2.1.14.1.2. Circulating pump(s): yes/no (<sup>1</sup>)
- 3.2.1.14.1.3. Characteristics or make(s) and type(s) (if applicable): .....
- 3.2.1.14.1.4. Drive ratio(s) (if applicable): .....
- 3.2.1.14.2. Air
- 3.2.1.14.2.1. Blower: yes/no (<sup>1</sup>)
- 3.2.1.14.2.2. Characteristics or make(s) and type(s) (if applicable): .....
- 3.2.1.14.2.3. Drive ratio(s) (if applicable): .....
- 3.2.1.15. Temperature permitted by the manufacturer
- 3.2.1.15.1. Liquid cooling: maximum temperature at outlet: .....
- 3.2.1.15.2. Air cooling: reference point: .....
- Maximum temperature at reference point: ..... K
- 3.2.1.15.3. Maximum charge air temperature at the intercooler outlet (if applicable): ..... K
- 3.2.1.15.4. Maximum exhaust temperature at the point in the exhaust pipe(s) adjacent to the outer flange(s) of the exhaust manifold(s): ..... K
- 3.2.1.15.5. Lubricant temperature: minimum: ..... K maximum: ..... K
- 3.2.1.16. Pressure charger: yes/no (<sup>1</sup>)
- 3.2.1.16.1. Make: .....
- 3.2.1.16.2. Type: .....
- 3.2.1.16.3. Description of the system (e.g. maximum charge pressure, waste-gate, if applicable): .....
- 3.2.1.16.4. Intercooler: yes/no (<sup>1</sup>)
- 3.2.1.17. Intake system: maximum allowable intake depression at rated engine speed and at 100 % load: ..... kPa
- 3.2.1.18. Exhaust system: maximum permissible exhaust back pressure at rated engine speed and at 100 % load: ..... kPa
- 3.2.2. Additional anti-pollution devices (if any, and if not covered by another heading)
- Description and/or (<sup>1</sup>) diagram(s): .....

- 3.2.3. Fuel feed
- 3.2.3.1. Feed pump  
Pressure<sup>(2)</sup> or characteristic diagram: ..... kPa
- 3.2.3.2. Injection system
- 3.2.3.2.1. Pump
- 3.2.3.2.1.1. Make(s): .....
- 3.2.3.2.1.2. Type(s): .....
- 3.2.3.2.1.3. Delivery: ..... mm<sup>3</sup> (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)
- 3.2.3.2.1.4. Injection advance
- 3.2.3.2.1.4.1. Injection advance curve (2): .....
- 3.2.3.2.1.4.2. Timing (2): .....
- 3.2.3.2.2. Injection piping
- 3.2.3.2.2.1. Length: ..... mm
- 3.2.3.2.2.2. Internal diameter: ..... mm
- 3.2.3.2.3. Injector(s)
- 3.2.3.2.3.1. Make(s): .....
- 3.2.3.2.3.2. Type(s): .....
- 3.2.3.2.3.3. Opening pressure (2) or characteristic diagram: .....
- 3.2.3.2.4. Governor
- 3.2.3.2.4.1. Make(s): .....
- 3.2.3.2.4.2. Type(s): .....
- 3.2.3.2.4.3. Speed at which cut-off starts under full load (2): ..... r/min
- 3.2.3.2.4.4. Maximum no-load speed (2): ..... r/min
- 3.2.3.2.4.5. Idling speed (2): ..... r/min
- 3.2.3.3 Cold-start system
- 3.2.3.3.1. Make(s): .....
- 3.2.3.3.2. Type(s): .....
- 3.2.3.3.3. Description: .....
- 3.2.4. Valve timing
- 3.2.4.1. Maximum lift and angles of opening and closing in relation to top dead centre or equivalent data: .....
- 3.2.4.2. Reference clearances and/or setting ranges (1)



- 3.2.4.3. Variable valve timing system (if applicable and where intake and/or exhaust)
  - 3.2.4.3.1. Type: continuous or on/off
  - 3.2.4.3.2. Cam phase shift angle: .....
- 3.2.5. Porting configuration
  - 3.2.5.1. Position, size and numbering: .....
- 3.2.6. Electronic control functions
 

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

  - 3.2.6.1. Make: .....
  - 3.2.6.2. Type: .....
  - 3.2.6.3. Part number: .....
  - 3.2.6.4. Location of engine electronic control unit: .....
    - 3.2.6.4.1. What does it sense: .....
    - 3.2.6.4.2. What does it control: .....

**Part 3 — Compression-ignition engine family**

- 3.3. *Essential characteristics of the engine family*
  - 3.3.1. List of engine types within a family
    - 3.3.1.1. Name of engine family: .....
    - 3.3.1.2. Specification of engine types within this family:

					Parent engine
Engine type					
Number of cylinders					
Rated speed (r/min)					
Fuel delivery per stroke (mm <sup>3</sup> ) at rated speed					
Rated net power (kW)					
Maximum torque speed (r/min)					
Fuel delivery per stroke (mm <sup>3</sup> ) at maximum torque speed					
Maximum torque (Nm)					
Low idle speed (r/min)					
Cylinder swept volume as % of parent engine					100

**Part 4 — Engine type**

- 3.4. *Essential characteristics of the engine type*
- 3.4.1. Description of the engine
- 3.4.1.1. Manufacturer: .....
- 3.4.1.2. Manufacturer's engine code as affixed to engines: .....
- 3.4.1.3. Cycle: four stroke/two stroke <sup>(1)</sup>
- 3.4.1.4. Bore: ..... mm
- 3.4.1.5. Stroke: ..... mm
- 3.4.1.6. Number and arrangement of cylinders: .....
- 3.4.1.7. Swept volume: ..... cm<sup>3</sup>
- 3.4.1.8. Rated speed: ..... r/min
- 3.4.1.9. Peak torque speed: ..... r/min
- 3.4.1.10. Compression ratio <sup>(2)</sup>: .....
- 3.4.1.11. Combustion system: .....
- 3.4.1.12. Drawing(s) of combustion chamber and piston crown: .....
- 3.4.1.13. Minimum cross sectional area of inlet and outlet ports: .....
- 3.4.1.14. Cooling system
- 3.4.1.14.1. Coolant
- 3.4.1.14.1.1. Nature of coolant: .....
- 3.4.1.14.1.2. Circulating pump(s): yes/no <sup>(1)</sup>
- 3.4.1.14.1.3. Characteristics or make(s) and type(s) (if applicable): .....
- 3.4.1.14.1.4. Drive ratio(s) (if applicable): .....
- 3.4.1.14.2. Air
- 3.4.1.14.2.1. Blower: yes/no <sup>(1)</sup>
- 3.4.1.14.2.2. Characteristics or make(s) and type(s) (if applicable): .....
- 3.4.1.14.2.3. Drive ratio(s) (if applicable): .....
- 3.4.1.15. Temperature permitted by the manufacturer:
- 3.4.1.15.1. Liquid cooling: maximum temperature at outlet: ..... K
- 3.4.1.15.2. Air cooling: reference point: .....
- Maximum temperature at reference point: .....
- 3.4.1.15.3. Maximum charge-air temperature at the intercooler outlet (if applicable): ..... K
- 3.4.1.15.4. Maximum exhaust temperature at the point in the exhaust pipe(s) adjacent to the outer flange(s) of the exhaust manifold(s): ..... K
- 3.4.1.15.5. Lubricant temperature: minimum: ..... K      maximum: ..... K

- 3.4.1.16. Pressure charger: yes/no <sup>(1)</sup>
- 3.4.1.16.1. Make: .....
- 3.4.1.16.2. Type: .....
- 3.4.1.16.3. Description of the system (e.g. maximum charge pressure, waste-gate, if applicable): .....
- 3.4.1.16.4. Intercooler: yes/no <sup>(1)</sup>
- 3.4.1.17. Intake system: maximum allowable intake depression at rated engine speed and at 100 % load:  
..... kPa
- 3.4.1.18. Exhaust system: maximum permissible exhaust back pressure at rated engine speed and at 100 % load:  
..... kPa <sup>(2)</sup>
- 3.4.2. Additional anti-pollution devices (if any, and if not covered by another heading)  
Description and/or diagram(s): .....
- 3.4.3. Fuel feed
- 3.4.3.1. Feed pump  
Pressure <sup>(2)</sup> or characteristic diagram: ..... kPa
- 3.4.3.2. Injection system
- 3.4.3.2.1. Pump
- 3.4.3.2.1.1. Make(s): .....
- 3.4.3.2.1.2. Type(s): .....
- 3.4.3.2.1.3. Delivery: ..... and ..... mm<sup>3</sup> <sup>(2)</sup> 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 <sup>(1)</sup>
- 3.4.3.2.1.4. Injection advance
- 3.4.3.2.1.4.1. Injection advance curve <sup>(2)</sup>: .....
- 3.4.3.2.1.4.2. Timing <sup>(2)</sup>: .....
- 3.4.3.2.2. Injection piping
- 3.4.3.2.2.1. Length: ..... mm
- 3.4.3.2.2.2. Internal diameter: ..... mm
- 3.4.3.2.3. Injector(s)
- 3.4.3.2.3.1. Make(s): .....
- 3.4.3.2.3.2. Type(s): .....
- 3.4.3.2.3.3. Opening pressure <sup>(2)</sup> or characteristic diagram <sup>(1)</sup>: .....

- 3.4.3.2.4. Governor(s)
- 3.4.3.2.4.1. Make(s): .....
- 3.4.3.2.4.2. Type(s): .....
- 3.4.3.2.4.3. Speed at which cut-off starts under full load <sup>(2)</sup>: ..... r/min
- 3.4.3.2.4.4. Maximum no-load speed <sup>(2)</sup>: ..... r/min
- 3.4.3.2.4.5. Idling speed <sup>(2)</sup>: ..... r/min
- 3.4.4. Cold-start system
- 3.4.4.1. Make(s): .....
- 3.4.4.2. Type(s): .....
- 3.4.4.3. Description: .....
- 3.4.5. Valve timing
- 3.4.5.1. Maximum lift and opening and closing angles in relation to top dead centre or equivalent data: .....
- 3.4.5.2. Reference clearances and/or setting ranges <sup>(1)</sup>: .....
- 3.4.5.3. Variable valve timing system (if applicable and where intake and/or exhaust)
- 3.4.5.3.1. Type: continuous or on/off
- 3.4.5.3.2. Cam phase shift angle: .....
- 3.4.6. Porting configuration
- 3.4.6.1. Position, size and number: .....
- 3.4.7. Electronic command functions
- If the engine features electronically controlled functions, information concerning their performance must be provided including:
- 3.4.7.1. Make: .....
- 3.4.7.2. Type: .....
- 3.4.7.3. Part number: .....
- 3.4.7.4. Location of engine electronic control unit: .....
- 3.4.7.4.1. What does it sense: .....
- 3.4.7.4.2. What does it control: .....
-