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**ECONOMIC COMMISSION FOR EUROPE**

INLAND TRANSPORT COMMITTEE

Working Party on Inland Water Transport  
(Forty-eighth session, 19-21 October 2004  
agenda item 7(d))

**CONSIDERATION OF MEASURES AIMED AT PREVENTION  
OF AIR POLLUTION FROM INLAND NAVIGATION VESSELS**

Note by the secretariat

The Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation, at its twenty-seventh session, considered the draft resolution on exhaust and pollutant particulate emissions from diesel engines prepared by the secretariat according to its instructions (document TRANS/SC.3/WP.3/2004/8) and approved it subject to a number of editorial modifications. The secretariat was requested to transmit the text of the draft resolution to the Working Party on Inland Water Transport for consideration and adoption (TRANS/SC.3/WP.3/55, paras. 31 and 32).

The text of the draft resolution as approved by the Working Party SC.3/WP.3 is reproduced below for further consideration by the Working Party on Inland Water Transport.

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**AMENDMENTS TO RESOLUTION NO. 17, REVISED: RECOMMENDATIONS  
ON TECHNICAL REQUIREMENTS FOR INLAND NAVIGATION VESSELS**

**Resolution No. ...**

(adopted by the Working Party on Inland Water Transport on ...)

The Working Party on Inland Water Transport,

Considering resolution No. 17, revised (TRANS/SC.3/103, annex 1), containing in its annex the Recommendations on Technical Requirements for Inland Navigation Vessels (TRANS/SC.3/104 and Add.1-5),

Bearing in mind the report of the Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation on its twenty-seventh session (TRANS/SC.3/WP.3/55, paras. 31 and 32),

Taking into account Directive of the European Parliament and of the Council 2004/26/EC amending Directive 97/68/EC 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,

Taking also into account chapter 8 *bis* of the Rhine Vessel Inspection Regulations (RVBR),

Considering that limitations on exhaust emissions from diesel engines newly installed in vessels used on European inland waterways and the control of such emissions will contribute to improving the quality of the environment,

Bearing in mind the efforts made by other transport modes to reduce exhaust emissions from diesel engines, as their technological development progresses,

Decides to amend the Recommendations on Technical Requirements for Inland Navigation Vessels by the text contained in the annex to this resolution,

Asks the World Forum for Harmonization of Vehicle Regulations (WP.29) to consider possible extension in the future of its relevant binding Regulations to emission of gaseous and particulate pollutants from compression ignition (C.I.) engines used on board inland navigation vessels,

Requests Governments to inform the Executive Secretary of the Economic Commission for Europe whether they accept this resolution,

Requests the Executive Secretary of the Economic Commission for Europe to place the question of the application of this resolution periodically on the agenda of the Working Party on Inland Water Transport.

Annex

Insert a new chapter 5 *bis* to read:

**“CHAPTER 5 *BIS***  
**EXHAUST AND POLLUTANT PARTICULATE EMISSIONS FROM DIESEL ENGINES**

5 *bis*-1 Definitions

5 *bis*-1.1 For the purposes of this chapter:

5 *bis*-1.1.1 “Engine” means an engine operating according to the compression-ignition principle (diesel engine), including main and auxiliary machinery engines;

5 *bis*-1.1.2 “Remanufactured engine” is a revised second-hand engine, similar to the engine replaced in terms of power, rating and conditions of installation;

5 *bis*-1.1.3 “Type approval” means the decision whereby the competent authority certifies that an engine type, family or group meets the technical requirements of this chapter in respect of emissions of engine exhaust and air-pollutant particulates;

5 *bis*-1.1.4 “Installation check” means the procedure whereby the competent authority ascertains that an engine installed in a vessel meets the technical requirements of this chapter as regards exhaust and air-pollutant emissions, including those occurring after any modifications and adjustments which may have taken place after type approval;

5 *bis*-1.1.5 “Interim check” means the procedure whereby the competent authority ascertains that an engine installed in a vessel meets the technical requirements of this chapter as regards exhaust and air-pollutant emissions, including those occurring after any modifications and/or adjustments which may have taken place after the mounting check;

5 *bis*-1.1.6 “Special check” means the procedure whereby the competent authority ascertains that an engine used on board a vessel still meets the technical requirements of this chapter as regards exhaust and air-pollutant emissions after each major modification;

5 *bis*-1.1.7 “Engine type” means a batch of engines which are identical in terms of the essential features of the engine; at least one unit of the engine type must be constructed;

5 *bis*-1.1.8 “Engine family” means a grouping of engines by the manufacturer, approved by the competent authority, which as a result of their design must all have similar features as regards the level of exhaust and air-pollutant particulate emissions and meet the requirements of this chapter;

5 *bis*-1.1.9 “Engine group” means a group of engines selected by the manufacturer, approved by the competent authority, which as a result of their design must all have similar features as regards the level of exhaust and air-pollutant particulate emissions and meet the requirements of

this chapter, the adjustment or modification of individual engines being permissible after the type approval within fixed limits;

5 bis-1.1.10 “Rated power” means the net power of the engine at rated speed and at full load;

5 bis-1.1.11 “Type approval certificate” means the document by which the competent authority certifies the type approval;

5 bis-1.1.12 “Collection of engine parameters” means the document containing all the parameters, including the parts (components) and adjustments of the engine, which have an impact on exhaust and air-pollutant particulate emissions and their modifications.

#### 5 bis-2 Fundamental principles

5 bis-2.1 This chapter shall apply to all engines of a net power equal to or greater than 37 kW installed on board vessels.

5 bis-2.2 Carbon monoxide (CO), hydrocarbon (HC), oxide of nitrogen (NO<sub>x</sub>) and particulate (PT) emissions from these engines shall not exceed the following values, in terms of the swept volume per cylinder in litres (SV):

Category	Swept volume SV [l] Net power P [kW]	Carbon monoxide (CO) [g/kWh]	Sum of hydrocarbons and oxides of nitrogen (HC+NO <sub>x</sub> ) [g/kWh]	Particulates (PM) [g/kWh]	Applied to engines installed on board after <sup>1/</sup>
1	2	3	4	5	6
V1:1	SV ≤ 0.9 and P ≥ 37	5.0	7.5	0.4	1 July 2007
V1:2	0.9 ≤ SV < 1.2	5.0	7.2	0.3	
V1:3	1.2 ≤ SV < 2.5	5.0	7.2	0.20	
V1:4	2.5 ≤ SV < 5	5.0	7.2	0.20	1 July 2009
V2:1	5 ≤ SV < 15	5.0	7.8	0.27	
V2:2	15 ≤ SV ≤ 20 and P < 3,300	5.0	8.7	0.50	
V2:3	15 ≤ SV < 20 and P ≥ 3,300	5.0	9.8	0.50	
V2:4	20 ≤ SV < 25	5.0	9.8	0.50	
V2:5	25 ≤ SV < 30	5.0	11.0	0.50	

<sup>1/</sup> Note by the secretariat: To unify the dates of application of this resolution the Working Party may wish to delete column 6 in the tables appearing in 5 bis-2.2 and reformulate point 5 bis-2.3 as follows: **“The requirements in paragraph 5 bis-2.2 shall not apply to engines installed on board prior to 1 July 2009 [1 July 2007] nor to remanufactured engines installed prior to 31 December 2011 inclusive, on board vessels in service at 31 December 2006.”**

Or, alternatively, in terms of rated power  $P_N$  :

Rated power $P_N$ [kW]	Carbon monoxide (CO) [g/kWh]	Hydro- carbons (HC) [g/kWh]	Oxides of nitrogen (NO <sub>x</sub> ) [g/kWh]	Particulates (PM) [g/kWh]	Applied to engines installed on board after <sup>1/</sup>
1	2	3	4	5	6
$37 \leq P_N < 75$	5.0	1.3	7.0	0.4	1 July 2007
$75 \leq P_N < 130$	5.0	1.0	6.0	0.3	
$130 \leq P_N < 560$	3.5	1.0	6.0	0.2	
$P_N \geq 560$	3.5	1.0	$n \geq 3,150 \text{ min}^{-1} = 6.0$ $343 \leq n < 3,150 \text{ min}^{-1} = 45 \cdot n^{(-0.2)} - 3$ $n < 343 \text{ min}^{-1} = 11.0$	0.2	

5 bis-2.3 The requirements in paragraph 5 bis-2.2 shall not apply to engines installed on board prior to the dates indicated in column 6 above<sup>1/</sup> nor to remanufactured engines installed prior to 31 December 2011 inclusive, on board vessels in service at 31 December 2006.

5 bis-2.4 Compliance with the requirements of paragraph 5 bis-2.2 shall be checked by using the ISO test procedure as specified in ISO 8178-4:1996 and IMO MARPOL 73/78, Annex VI (NO<sub>x</sub> Code).

5 bis-2.5 Compliance with the requirements of paragraph 5 bis-2.2 by an engine type, group or family shall be observed by means of a type inspection. The type inspections shall be certified by a type approval certificate. Type approvals for all engines shall be granted according to UNECE Regulation No.96 Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts. The owner or his representative shall be required to present a copy of the type approval certificate to the competent authority on the inspection of vessels with a view to obtaining a Ship's Certificate in accordance with the provisions of chapter 1 bis. A copy of the type approval certificate and the collection of engine parameters shall also be on board.

5 bis-2.6 After the installation of the engine on board, but before it is brought into service, an installation check shall be made. This check, which is part of the initial inspection of the vessel or of a special inspection justified by the installation of the engine in question, leads either to the registration of the engine in the first Ship's Certificate drawn up or to an amendment to the existing Ship's Certificate.

5 bis-2.7 Interim engine checks shall be effected as part of a periodical inspection in accordance with paragraph 1 bis-4.

5 bis-2.8 A special check shall be made after each major modification to the engine with an impact on exhaust and air-pollutant particulate emission.

5 *bis*-2.9 The type approval and identification numbers (designated and arranged according to UNECE Regulation No.96) of all the engines referred to in this chapter installed on board a vessel shall be registered in the Ship's Certificate by the competent authority on the inspection of vessels.”

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