DIRECTIVE 2002/51/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 19 July 2002

on the reduction of the level of pollutant emissions from two- and three-wheel motor vehicles and amending Directive 97/24/EC

(Text with EEA relevance)

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]), in the light of the joint text approved by the Conciliation Committee on 1 May 2002,

Whereas:

(1) The fifth programme of action of the European Community on protection of the environment, which in its general approach was approved by the Council in the Resolution of the Council and the Representatives of the Governments of the Member States, meeting within the Council, of 1 February 1993 ([4]), provides for additional efforts to be made for a considerable reduction in the present level of emissions of pollutants from motor vehicles.

(2) Directive 97/24/EC of the European Parliament and of the Council of 17 June 1997 on certain components and characteristics of two or three-wheel motor vehicles ([5]) is one of the separate Directives under the type-approval procedure laid down by Council Directive 92/61/EEC of 30 June 1992 relating to the type-approval of two- or three-wheel motor vehicles ([6]).

(3) Under Article 5 of Directive 97/24/EC, the Commission is required to submit, to the European Parliament and the Council, within 24 months from the date of adoption of the Directive, a proposal prepared on the basis of research and an assessment of the costs and benefits deriving from the application of tightened-up limit values and laying down a subsequent stage during which measures will be adopted aimed at further tightening of the limit values for pollutants of the vehicles concerned. Such action is limited to motorcycles, since a subsequent stage entailing tighter limit values for mopeds, to be applied from 17 June 2002, is already provided for in Directive 97/24/EC.

(4) On the basis of the assessment of the technical feasibility and cost-effectiveness, a single set of new Type I test limits, applicable from 2003 for all motorcycles, has been identified, corresponding to a reduction of 60 % for hydrocarbons and carbon monoxide for four-stroke motorcycles, and 70 % for hydrocarbons and 30 % for carbon monoxide for two-stroke motorcycles. For four-stroke motorcycles, further reductions in nitrogen oxides were not considered feasible with the envisaged technologies. For two-stroke motorcycles, the application of advanced direct injection technology, which has the greatest reduction potential in terms of carbon monoxide and hydrocarbons, is inevitably linked to a moderate increase of the nitrogen oxides limit, relative to the present-day limit value, bringing the limit in line with four-stroke motorcycles. On the basis of the emission inventory, which confirms the marginal share of motorcycles in total road-transport emissions of nitrogen oxides, this is regarded as acceptable.

(5) In the light of the special characteristics and the use of certain categories of vehicle known as enduro and trial motorcycles and having regard to their very small contribution to overall emissions, owing to the small number of such vehicles sold each year in Europe, a temporary derogation, in respect of the entry into force of the new limits in 2003, should be granted in order to allow manufacturers to introduce the appropriate technology.

(6) Inspection and maintenance are regarded as essential to ensure that emission levels of new vehicles do not exceed in-use acceptable levels. In this respect, and in line with the provisions for passenger cars, the requirements for type II testing, and in particular the limit for carbon monoxide content of 4,5 % by volume, should be replaced by requirements to measure and record the necessary data for the purpose of roadworthiness testing.

(7) Tricycles and quadricycles are equipped either with spark ignition or compression ignition (diesel) engines; in line with emission limits for passenger cars, each category requires a separate set of limit values. In this respect the question of particulate emissions needs to be addressed in the future.

([1]) OJ C 337 E, 28.11.2000, p. 140 and OJ C 240 E, 28.8.2001, p. 146.
([2]) OJ C 123, 25.4.2001, p. 22.
([3]) Opinion of the European Parliament of 14 February 2001 (OJ C 276, 1.10.2001, p. 135), Council Common Position of 13 July 2001 (OJ C 301, 26.10.2001, p. 43) and Decision of the European Parliament of 12 December 2001. Decision of the European Parliament of 30 May 2002 and Council Decision of 11 June 2002.
([4]) OJ C 138, 17.5.1993, p. 1.
([5]) OJ L 226, 18.8.1997, p. 1.
([6]) OJ L 225, 10.8.1992, p. 72. Directive as last amended by Directive 2000/7/EC of the European Parliament and of the Council (OJ L 106, 3.5.2000, p. 1).

(8) The characteristics of the reference fuels used for emission testing should be aligned with those applicable to passenger cars, thereby reflecting the changes in the specifications of market fuel in accordance with Community legislation on the quality of petrol and diesel fuels.

(9) Member States should be allowed, by way of tax incentives, to expedite the placing on the market of vehicles which satisfy the requirements adopted at Community level and to promote more environmentally advanced technologies on the basis of mandatory emission values; such incentives should satisfy certain conditions intended to avoid distortions of the internal market; this Directive does not affect the Member States' right to include emissions of pollutants and other substances in the basis for calculating road traffic taxes on two- and three-wheel vehicles.

(10) In accordance with the Treaty, Member States may inter alia offer fiscal or financial incentives for the retrofitting of older two- and three-wheel motor vehicles, if they thereby meet the limit values contained in this Directive or in the earlier version of Directive 97/24/EC.

(11) A new type-approval test cycle should be introduced which will allow a more representative evaluation of the emissions performance, in test conditions that more closely resemble those encountered by vehicles in use, and which takes into account the difference in driving patterns between small and large motorcycles. Additional development work is in progress in order to support the introduction of a new test cycle in a scientifically sound manner.

(12) It is necessary to establish a further stage of mandatory emission limits with effect from 2006 comprising further substantial reductions with respect to the limit values for 2003.

(13) In order to ensure compliance with emission limit values, conformity testing of in-service two- and three-wheel motor vehicles (in-service tests) should be introduced from 1 January 2006. Specific requirements for the correct operation of emission-control devices during the normal life of two or three-wheel motor vehicles should be introduced as from 1 January 2006 for up to 30 000 km.

(14) It should also be ensured that operating conditions of two- and three-wheel motor vehicles in use correspond to the settings for the test cycle and that no defeat devices or other by-pass arrangements are used.

(15) As two- and three-wheel motor vehicles produce an increasing proportion of total CO_2 emissions from transport sources, CO_2 emissions and/or the fuel consumption of two- and three-wheel motor vehicles should be established as soon as possible and incorporated in the Community strategy for reducing road-transport CO_2 emissions.

(16) In view of the global market for motorcycles and of similar problems of air quality worldwide, it is worth striving for a harmonised test cycle. It is noted that the Commission will maintain its efforts to finalise such a harmonised test cycle with all other parties involved in other markets and conclude this as soon as possible. The worldwide motorcycle emission test cycle currently elaborated in Geneva by Working Party 29 of the United Nations Economic Commission for Europe is a good basis. It is appropriate to introduce such a new worldwide test cycle as an alternative type-approval procedure for the second stage in 2006. When it has been widely recognised and for all further reduction stages the new test cycle could become the regular basis for type-approval.

(17) The objective of the proposed action, namely the reduction of the level of pollutant emissions from two and three-wheel motor vehicles, cannot be sufficiently achieved by the Member States and can therefore by reason of the scale or effects of the action be better achieved at Community level, the Community may adopt measures in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. In accordance with the principle of proportionality, as set out in that Article, this Directive does not go beyond what is necessary in order to achieve that objective.

(18) Directive 97/24/EC should be amended accordingly,

HAVE ADOPTED THIS DIRECTIVE:

Article 1

This Directive aims at reducing the level of pollutant emissions from two- and three-wheel motor vehicles by tightening the limit values for such emissions.

Article 2

1. With effect from 1 April 2003, no Member State may, on grounds relating to the measures to be taken against air pollution:

(a) refuse to grant EC type-approval pursuant to Article 4(1) of Directive 92/61/EEC, or

(b) prohibit the registration, sale or entry into service of vehicles,

if the measures to be taken against air pollution comply with the requirements of Directive 97/24/EC.

2. With effect from 1 April 2003, Member States shall refuse to grant EC type-approval pursuant to Article 4(1) of Directive 92/61/EEC for any type of vehicle on grounds relating to the measures to be taken against air pollution, if it fails to comply with the provisions of Directive 97/24/EC.

For the type I test, the limit values set out in row A of the Table in Chapter 5, Annex II, Section 2.2.1.1.5 to Directive 97/24/EC shall be used.

3. With effect from 1 July 2004, Member States shall:

(a) consider certificates of conformity which accompany new vehicles pursuant to Directive 92/61/EEC as no longer valid; and

(b) refuse the registration, sale or entry into service of new vehicles which are not accompanied by a certificate of conformity in accordance with Directive 92/61/EEC,

on grounds relating to the measures to be taken against air pollution, if the vehicles fail to comply with the provisions of Directive 97/24/EC.

For the type I test for mopeds, the limit values set out in the second row of the Table in Chapter 5, Annex I, Section 2.2.1.1.3 to Directive 97/24/EC shall be used.

For the type I test for motorcycles and tricycles, the limit values set out in rows A of the table in Chapter 5, Annex II, Section 2.2.1.1.5 to Directive 97/24/EC shall be used.

4. For trial and enduro motorcycles with two wheels, in accordance with Directive 92/61/EEC, the date set in paragraph 2 shall be 1 January 2004 and the date set in paragraph 3 shall be 1 July 2005.

Trial motorcycles are defined as vehicles with the following characteristics:

(a) Maximum seat height: 700 mm;

(b) Minimum ground clearance: 280 mm;

(c) Maximum fuel tank capacity: 41 l;

(d) Minimum overall gear ratio in the highest gear (primary ratio × gear ratio × final drive ratio) of 7,5.

Enduro motorcycles are defined as vehicles having the following characteristics:

(a) Minimum seat height of 900 mm;

(b) Minimum ground clearance of 310 mm;

(c) Minimum overall gear ratio in the highest gear (primary ratio × gear ratio × final drive ratio) of 6,0.

Article 3

1. With effect from 1 January 2006, Member States shall refuse to grant EC type-approval pursuant to Article 4(1) of Directive 92/61/EEC for a new vehicle type on grounds relating to measures to be taken against air pollution, if it fails to comply with the provisions of Directive 97/24/EC.

For the type I test, the limit values set out in rows B of the Table in Chapter 5, Annex II, Section 2.2.1.1.5 to Directive 97/24/EC shall be used.

2. With effect from 1 January 2007, Member States shall:

(a) consider certificates of conformity which accompany new vehicles pursuant to Directive 92/61/EEC as no longer valid, and

(b) refuse the registration, sale or entry into service of new vehicles which are not accompanied by a certificate of conformity in accordance with Directive 92/61/EEC,

on grounds relating to the measures to be taken against air pollution, if the vehicles fail to comply with the provisions of Directive 97/24/EC.

For the type I test, the limit values set out in rows B of the Table in Chapter 5, Annex II, Section 2.2.1.1.5 to Directive 97/24/EC shall be used.

For vehicle types of which no more than 5 000 units are sold annually in the European Union, the date shall be 1 January 2008.

Article 4

1. Member States may make provision for tax incentives only in respect of vehicles which comply with Directive 97/24/EC. Such incentives shall comply with either of the following conditions:

(a) they shall apply to all new vehicles offered for sale on the market of a Member State which comply in advance with the mandatory limit values set out in row A of the Table in Chapter 5, Annex II, Section 2.2.1.1.5 to Directive 97/24/EC; they shall be terminated with effect from the mandatory application of the emission limit values laid down in Article 2(3) for new vehicles; or

(b) they shall apply to all new vehicles offered for sale on the market of a Member State which comply in advance with the mandatory limit values set out in rows B of the Table in Chapter 5, Annex II, Section 2.2.1.1.5 of Directive 97/24/EC. They shall end on the date for the mandatory application of the emission limit values for new vehicles laid down in Article 3(2) of this Directive.

2. For each type of vehicle referred to in paragraph 1, the tax incentives shall be for an amount lower than the additional cost of obtaining and fitting on the vehicle the technical solutions introduced to ensure compliance with the values set in either row A or row B of the Table in Chapter 5, Annex II, Section 2.2.1.1.5 to Directive 97/24/EC.

3. The Commission shall be informed in sufficient time of plans to create or change the tax incentives referred to in paragraph 1, so that it can submit its observations.

Article 5

Type-approvals shall also confirm the correct operation of the emission-control devices during the normal life of two and three-wheel motor vehicles as from 1 January 2006 for new vehicle types and as from 1 January 2007 for all vehicle types for up to 30 000 km. To this end, the Commission shall submit to the European Parliament and the Council by 31 December 2002 a proposal defining 'normal life' and establishing supplementary provisions. In its cost-benefit-analysis the Commission shall particularly pay attention to the effects its proposals have on small and medium-sized enterprises.

Article 6

1. With effect from 1 January 2006 for new two and three-wheel motor vehicles and from 1 January 2007 for all vehicle types, type-approvals granted to vehicles shall also require confirmation of the correct operation of emission-control devices during the normal life of the vehicle under normal conditions of use (conformity of in-service vehicles properly maintained and used).

2. To this end, the Commission shall submit a proposal to the European Parliament and the Council defining 'normal life' and establishing supplementary provisions. They shall include, *inter alia*, if appropriate:

— criteria for carrying out checks,

— criteria for selecting the vehicles to be tested,

— criteria for carrying out the tests,

— rules to eliminate possible errors,

— the criterion that there shall be no charge for the owner/holder of the vehicle.

In its cost-benefit analysis the Commission shall particularly pay attention to the effects its proposals have on small and medium-sized enterprises.

Article 7

1. With effect from 1 January 2006 Member States may no longer grant EC type approval and shall refuse national type approval for a two- or three-wheel vehicle if its CO_2-emission and fuel consumption are not established in accordance with the relevant provisions.

2. With effect from 1 January 2007 Member States shall:

— consider certificates of conformity which accompany new two-wheel motor vehicles with an engine capacity of over 150 cm^3 pursuant to Directive 92/61/EEC as no longer valid, and

— refuse the registration, sale or entry into service of new vehicles which are not accompanied by a certificate of conformity in accordance with Directive 92/61/EEC, if their CO_2-emissions and fuel consumptions are not established in accordance with the relevant provisions.

Article 8

1. The Commission shall consider a further tightening of the emission standards of vehicles falling within the scope of this Directive, taking into account:

(a) technical developments in the field of emission control technology and their technical and economic feasibility with regard to their application to motorcycles, as well as their application in the diverse market that these vehicles satisfy;

(b) the advances in the development of a more representative test cycle for motorcycles which remedies the current limitations of the current test cycle, such as cold start and high driving dynamics;

(c) the opportunity to harmonise the test cycle on a worldwide basis;

(d) the correlation of limit values between the current and the new test cycle;

(e) further work on particulate emissions, and the issue of particulate emissions from compression ignition and spark ignition engines;

(f) ongoing work on durability and in-use compliance;

(g) further work on cold starting, on-board diagnostics (OBD) systems, and evaporation emissions;

(h) ongoing work on replacement catalytic converters;

(i) the economic impact on small series production and on small volume manufacturers;

The Commission furthermore will develop a methodology for measuring specific CO_2 emissions from two- or three-wheel motor vehicles.

2. The Commission shall, not later than 31 December 2002, submit to the Committee for Adaptation to Technical Progress a proposal setting out a test method for the measurement of particulate emissions in accordance with the results of the studies as prescribed in paragraph 1(e), to be applied to new type-approvals from 1 January 2004.

3. The Commission shall, not later than 31 December 2002, submit a proposal to the European Parliament and the Council, containing:

(a) mandatory emission limit values to be used in the Type I test for tricycles and quadricycles for the second mandatory stage from 2006 and mandatory emission limit values for particulate emissions in accordance with the results of the studies as prescribed in paragraph 1(e).

(b) an obligation to measure specific CO_2 emissions in type approval in accordance with Article 7. The Commission shall also submit appropriate proposals for the inclusion of two- and three-wheel motor vehicles in the Community strategy for reducing transport CO_2 emissions (agreement to reduce average CO_2 emissions, labelling, tax incentives);

(c) provisions relating to durability to be applied from 1 January 2006, in accordance with Article 5;

(d) requirements to include conformity testing on in-service vehicles (in-service tests) in the type-approval procedure for two- or three-wheel motor vehicles with effect from 1 January 2006 pursuant to Article 6;

(e) a new set of limit values (stage III) for mopeds, including particulate emissions in accordance with the results of the studies as prescribed in paragraph 1(e), to be applied from 2006. The provisions on durability requirements and the obligation to measure specific CO_2 emissions in type approval will also be applied to mopeds.

4. The Commission shall submit proposals to the European Parliament and Council concerning inspection and maintenance, OBD and evaporative emission control. The Commission shall also ensure that only replacement and retrofit parts for exhaust systems which comply with Directive 97/24/EC and this Directive are placed on the market. The issuing of type-approval must be sufficiently verifiable and the data on the type-approvals issued must be quickly, efficiently and transparently retrievable and traceable in a European data system.

5. As soon as possible and at the latest after the technical development of the worldwide test cycle, the Commission shall present a proposal for its inclusion and a new set of limit values, including particulate emissions for compression ignition engines and two-stroke spark-ignition engines. These limit values should be set in correlation to the second mandatory stage in 2006 of this Directive (row B, in the table in Chapter 5, Annex II, Section 2.2.1.1.5 to (Directive 97/24/EC)) in order to guarantee the same emission level. The test cycle should be introduced together with these new limit values (row C to be inserted in the table in Chapter 5, Annex II, section 2.2.1.1.5 to Directive 97/24/EC) as an alternative type-approval procedure at the choice of the manufacturer for the second mandatory stage in 2006. In line with the adoption of the new worldwide test cycle in other regions it will then become the only regular type-approval procedure. For further stages in the reduction of exhaust emissions after 2006 the new test cycle with limit values based on this cycle will be the only valid type-approval procedure.

Article 9

Chapter 5 of Directive 97/24/EC shall be amended in accordance with the text in the Annex hereto.

Article 10

Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 1 April 2003. They shall forthwith inform the Commission thereof.

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 reference shall be laid down by Member States.

Article 11

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

Article 12

This Directive is addressed to the Member States.

Done at Brussels, 19 July 2002.

For the European Parliament	*For the Council*
The President	*The President*
P. COX	T. PEDERSEN

ANNEX

AMENDMENTS TO CHAPTER 5 OF DIRECTIVE 97/24/EC

1. Annex II shall be amended as follows:

(a) Section 1.4 shall be replaced by the following:

'1.4. "Gaseous pollutants" means the exhaust gas emissions of carbon monoxide, oxides of nitrogen expressed in terms of nitrogen dioxide (NO_2) equivalent, and hydrocarbons, assuming a ratio of:

— $C_1H_{1,85}$ for petrol;

— $C_1H_{1,86}$ for diesel.'

(b) the following sections shall be added:

'1.5. "Defeat device" means a device which measures, senses or responds to operating variables (e.g. vehicle speed, engine speed, gear used, temperature, intake pressure or any other parameter) for the purpose of activating, modulating, delaying or deactivating the operation of any component or function of the emission control system such that the effectiveness of the emission control system is reduced under conditions encountered during normal vehicle use unless the use of such a device is substantially included in the applied emission certification test procedure.

1.6. "Irrational emission control strategy" means any strategy or measure that, when the vehicle is operated under normal conditions of use, reduces the effectiveness of the emission control system to a level below that expected on the applicable emission test procedure.';

(c) Section 2.2.1.1 shall be replaced by the following:

'2.2.1.1. **Type I test** (checking the average value of tailpipe emissions in a congested urban area).

2.2.1.1.1. The test is carried out by the procedure described in Appendix 1. The methods used to collect and analyse the gaseous pollutants are those laid down.

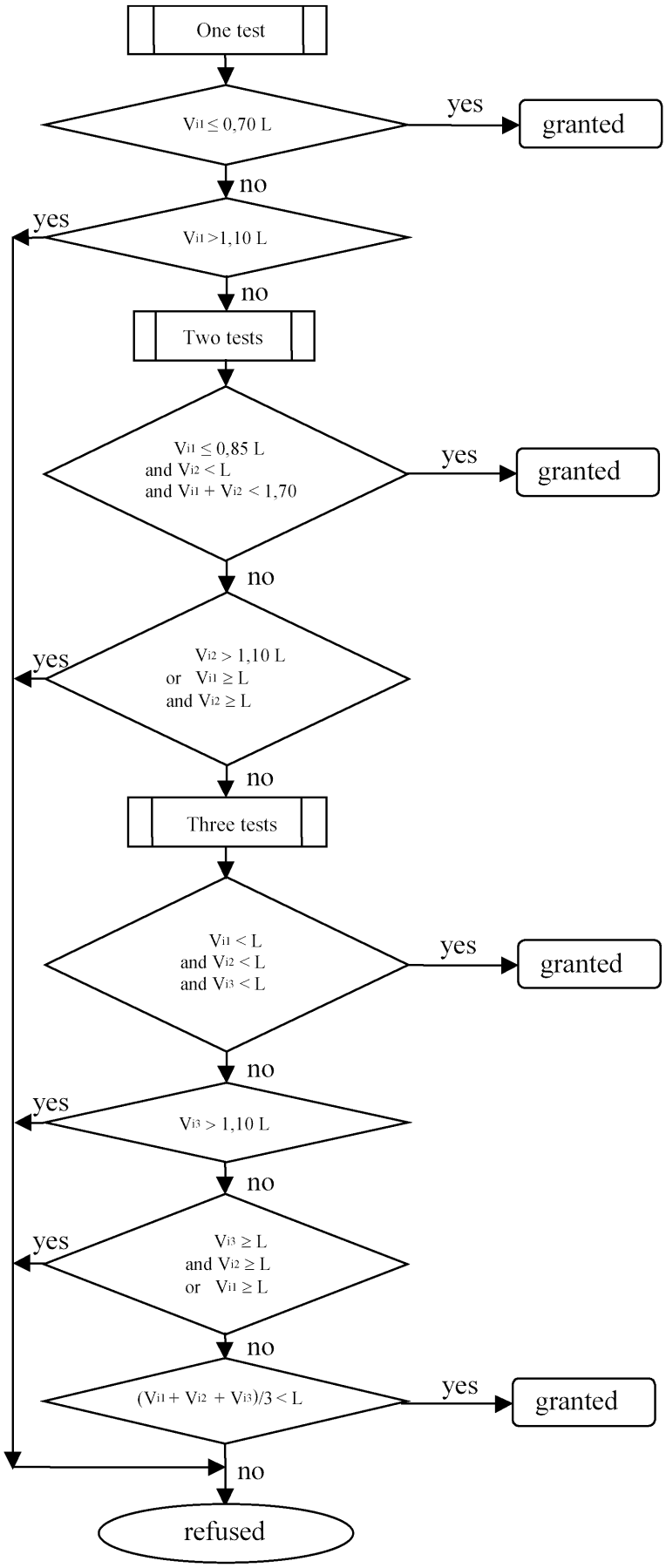
2.2.1.1.2. Figure I.2.2 illustrates the routes for type I test.

2.2.1.1.3. The vehicle is placed on a chassis dynamometer equipped with a means of load and inertia simulation.

2.2.1.1.4. During the test the exhaust gases are diluted and a proportional sample collected in one or more bags. The exhaust gases of the vehicle tested are diluted, sampled and analysed, following the procedure described below, and the total volume of the diluted exhaust is measured.

Figure I.2.2.

Flow chart for the type I test



2.2.1.1.5. Subject to the requirements for 2.2.1.1.6, the test must be repeated three times. The resulting masses of gaseous emissions obtained in each test must be less than the limits shown in the table below (rows A for 2003 and rows B for 2006):

	Class	Mass of carbon monoxide (CO)	Mass of hydrocarbons (HC)	Mass of oxides of nitrogen (NO_X)
		L_1 (g/km)	L_2 (g/km)	L_3 (g/km)
Limit values for motorcycles (two-wheel) for type approval ande conformity of production				
A (2003)	I (< 150 cm³)	5,5	1,2	0,3
	II (≥ 150 cm³)	5,5	1,0	0,3
B (2006)	I (< 150 cm³) (UDC cold) (1)	2,0	0,8	0,15
	II (≥ 150 cm³) (UDC + EUD cold) (2)	2,0	0,3	0,15
Limit values for tricycles and quadricycles for type approval and conformity of production (positive ignition)				
A (2003)	All	7,0	1,5	0,4
Limit values for tricycles and quadricycles for type approval and conformity of production (compression ignition)				
A (2003)	All	2,0	1,0	0,65

(1) Test cycle: ECE R40 (with emissions mesured for all six modes — sampling starts at T = 0).
(2) Test cycle: ECE R40 + EUDC (emissions measured from all modes — sampling starts at T = 0), with the maximum speed of 120 km/h.

(*) The necessary technical amendments related to Appendix 1 and to sub-appendices 1 and 4 of Annex II of Chapter 5 of this Directive shall be adopted no later than 1 October 2002 in conformity with the procedure of the Committee on the Adaptation to Technical Progress of the Directives on the Removal of Technical Barriers to Trade in the Motor Vehicle Sector, pursuant to Article 13 of Council Directive 70/156/EEC of 6 February 1970 on the approximation of the laws of the Member States relating to the type-approval of motor vehicles and their trailers (OJ L 42, 23.2.1970, p. 1).

2.2.1.1.5.1. Notwithstanding the requirements of 2.2.1.1.5., for each pollutant or combination of pollutants, one of the three resulting masses obtained may exceed, by not more than 10 %, the limit prescribed, provided the arithmetical mean of the three results is below the prescribed limit. Where the prescribed limits are exceeded for more than one pollutant, it is immaterial whether this occurs in the same test or in different tests.

2.2.1.1.5.2. When testing for compliance with the limit values in rows B for 2006 for motorcycles with a permitted maximum speed of 110 km/h, the maximum speed for the extra-urban driving cycle will be restricted to 90 km/h.

2.2.1.1.6. The number of tests prescribed in 2.2.1.1.5 is reduced in the conditions hereinafter defined, where V_1 is the result of the first test and V_2 the result of the second test for each pollutant.

2.2.1.1.6.1. Only one test is performed if the result obtained for each pollutant is less than or equal to 0,70 L (i.e. $V_1 \leq 0{,}70$ L).

2.2.1.1.6.2. If the requirement of 2.2.1.1.6.1 is not satisfied, only two tests are performed if, for each pollutant the following requirements are met:

$V_1 \leq 0{,}85$ L and $V_1 + V_2 \leq 1{,}70$ L and $V_2 \leq$ L.';

(d) Table I and Table II in Section 2.2 shall be deleted;

(e) Section 2.2.1.2 shall be replaced by the following:

'2.2.1.2. **Type II test** (test of carbon monoxide at idling speed) and emissions data required for roadworthiness testing.

2.2.1.2.1. This requirement applies to all vehicles powered by a positive-ignition engine for which EC type-approval is sought in accordance with this Directive.

2.2.1.2.2. When tested in accordance with Appendix 2 (type II test) at normal idling speed:

— the carbon monoxide content by volume of the exhaust gases emitted is recorded.

— the engine speed during the test must be recorded, including any tolerances.

2.2.1.2.3. When tested at "high idle" speed (i.e. >2 000 min^{-1}):

— the carbon monoxide content by volume of the exhaust gases emitted is recorded.

— the engine speed during the test must be recorded, including any tolerances.

2.2.1.2.4. The engine oil temperature at the time of the test must be measured and recorded.

2.2.1.2.5. The recorded data are completed in the relevant Sections of the document, referred to in Annex VII of Directive 92/61/EEC.';

(f) the following section shall be added:

'2.3. The use of a defeat device and/or irrational emissions control strategy is forbidden.

2.3.1. An engine control device, function, system or measure may be installed to a vehicle provided that:

— it is activated only for such purposes as engine protection, cold starting or warming up, or

— it is activated only for such purposes as operational security or safety and limp-home strategies.

2.3.2. The use of an engine control device, function, system or measure which results in the use of a different or modified engine control strategy to that normally employed during the applicable emission test cycles will be permitted if, in complying with the requirements of section 2.3.3, it is fully demonstrated that the measure does not reduce the effectiveness of the emission control system. In all other cases, such devices shall be considered to be a defeat device.

2.3.3. The manufacturer shall provide a documentation package that gives access to the basic design of the system and the means by which it controls its output variables, whether that control is direct or indirect.

(a) The formal documentation package, which shall be supplied to the technical service at the time of submission of the type approval application, shall include a full description of the system. This documentation may be brief provided that it exhibits evidence that all outputs permitted by a matrix obtained from a range of control of the individual unit inputs have been identified.

The documentation shall also contain a justification for the use of any engine control device, function, system or measure and include additional material and test data to demonstrate the effect on exhaust emissions of any such device installed in the vehicle. This information shall be attached to the documentation required in Annex V.

(b) Additional material that shows the parameters that are modified by any engine control device, function, system or measure and the boundary conditions under which such measures operate. The additional material shall include a description of the fuel system control logic, timing strategies and switch points during all modes of operation. This information shall remain strictly confidential and be retained by the manufacturer, but be made open for inspection at the time of type approval.';

(g) Section 3.1.1. shall be replaced by the following:

'3.1.1. A vehicle is taken from the series and subjected to the test described in 2.2.1.1. The limit values for checking conformity of production are those indicated in the table in Section 2.2.1.1.5.';

(h) the former Section 3.1.1 shall be renumbered 3.1.2 and amended as follows:

— the words 'Tables I and II' shall be replaced by 'the Table in Section 2.2.1.1.5';

— the words 'the tables referred to in 2.2.1.1.2' shall be replaced by 'the Table in Section 2.2.1.1.5';

(i) Section 3.1.3 of Appendix 1 shall be replaced by the following:

'3.1.3. The tightness of the intake system may be checked to ensure the carburation is not affected by an accidental intake of air.';

(j) in Section 5.3.1 of Appendix 1, the last sentence shall read as follows:

'Two complete pre-conditioning cycles are performed before the exhaust gases are collected.';

(k) Section 6.1.3 of Appendix 1 shall be replaced by the following:

'6.1.3. Before initiation of the first pre-conditioning cycle, a flow of air of variable speed is directed at the motorcycle or motor tricycle. Two complete cycles are then performed during which no exhaust gases are collected. The ventilation system must include a mechanism controlled by the speed of the bench roller so that, in the range from 10 km/h to 50 km/h, the linear air speed at the blower outlet is equal to the relative speed of the roller with an approximation of 10 %. For roller speeds below 10 km/h, the air speed may be zero. The end section of the blower device must have the following characteristics:

(i) surface area of at least 0,4 m^2;

(ii) lower edge between 0,15 and 0,20 m above ground level;

(iii) distance from the leading edge of the motorcycle or motor tricycle between 0,3 and 0,45 m.';

(l) Section 6.2.2 of Appendix 1 shall be replaced by the following:

'6.2.2. The first cycle begins when the taking of samples and the measuring of the pump rotations commence.';

(m) Section 7.2.1 of Appendix 1 shall be replaced by the following:

'7.2.1. After two pre-conditioning cycles (first moment of the first cycle), the operations specified in 7.2.2 to 7.2.5 are performed simultaneously.';

(n) Section 7.4 of Appendix 1 shall be replaced by the following:

'7.4. **Analysis**

7.4.1. The exhaust gases contained in the bag must be analysed as soon as possible and in any event not later than 20 minutes after the end of the test cycle.

7.4.2. Prior to each sample analysis the analyser range to be used for each pollutant must be set to zero with the appropriate zero gas.

7.4.3. The analysers are then set to the calibration curves by means of span gases of nominal concentrations of 70 to 100 % of the range.

7.4.4. The analysers' zeros are then rechecked. If the reading differs by more than 2 % of range from that set in 7.4.2, the procedure is repeated.

7.4.5. The samples are then analysed.

7.4.6. After the analysis, zero and span points are rechecked using the same gases. If these rechecks are within 2 % of those in 7.4.3, the analysis is considered acceptable.

7.4.7. At all points in this Section the flow-rates and pressures of the various gases must be the same as those used during calibration of the analysers.

7.4.8. The figure adopted for the concentration of each pollutant measured in the gases is that read off after stabilisation on the measuring device.';

(o) Section 2.2 of Appendix 2 shall be replaced by the following:

'2.2. The Type II test specified in section 2.2.1.2 of Annex II must be measured immediately after the Type I test with the engine at normal idling speed and at high idle.';

2. Annex IV shall be replaced by the following:

'*ANNEX IV*

SPECIFICATIONS FOR THE REFERENCE FUEL (PETROL)

The reference fuel used is the one described in ANNEX IX, Section 1, of Directive 70/220/EEC.

SPECIFICATIONS FOR THE REFERENCE FUEL (DIESEL)

The reference fuel used is the one described in ANNEX IX, Section 2, of Directive 70/220/EEC.'