П

(Acts whose publication is not obligatory)

COUNCIL

COUNCIL DIRECTIVE

of 13 March 1989

amending Directive 78/1015/EEC on the approximation of the laws of the Member States on the permissible sound level and exhaust systems of motorcycles

(89/235/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 100a thereof,

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

In cooperation with the European Parliament (2),

Having regard to the opinion of the Economic and Social Committee (3),

Whereas it is important to adopt measures with the aim of progressively establishing the internal market over a period expiring on 31 December 1992; whereas the internal market shall comprise an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured;

Whereas Directive 78/1015/EEC (4), as last amended by Directive 87/56/EEC (5), lays down limits for the sound level of motorcycles and provisions governing exhaust systems fitted as original equipment to motorcycles;

Whereas replacement exhaust systems very frequently differ from original equipment; whereas this situation therefore has, among other things, adverse effects on the sound emissions of motorcycles; whereas an EEC type-approval procedure for such replacement devices, making it possible to establish that a type of device meets the technical requirements and checks laid down at Community level, is likely to be an adequate means of reducing the sound level of motorcycles in use and of affording the population additional protection against noise nuisances caused by such vehicles;

Whereas, to that end, Directive 78/1015/EEC should be amended by including provisions on exhaust systems as separate technical units to be marketed and used as replacement parts, so that such equipment may be regulated by Community requirements for ensuring effective protection against noise nuisances,

HAS ADOPTED THIS DIRECTIVE:

Article 1

Directive 78/1015/EEC is hereby amended as follows:

1. Article 2 is replaced by the following:

'Article 2

For the purposes of this Directive:

- (a) "national type-approval" means the administrative procedure known as:
 - "agréation par type" and "aanneming", in Belgian law,
 - "standardtypegodkendelse", in Danish law,
 - "allgemeine Betriebserlaubnis", in German law,
 - "εγκριοη τυπου" in Greek law,

⁽¹⁾ OJ No C 44, 17. 2. 1988, p. 5.

⁽²⁾ OJ No C 262, 10.10.1988, p. 86 and OJ No 47, 27.2.1989.

⁽³⁾ OJ No C 175, 4. 7. 1988, p. 8.

⁽⁴⁾ OJ No L 349, 13. 12. 1978, p. 21.

⁽⁵⁾ OJ No L 24, 27. 1. 1987, p. 42.

- "homologación de tipo", in Spanish law,
- "réception par type", in French law,
- "type-approval", in Irish law,
- "omologazione" or "approvazione del tipo", in Italian law,
- "agréation", in Luxembourg law,
- "typegoedkeuring", in Dutch law,
- "aprovação de marca e modelo", in Portuguese law,
- "type-approval", in United Kingdom law;
- (b) "EEC type-approval of replacement exhaust systems or components thereof as separate technical units" means the measure whereby a Member State established that a type of replacement exhaust system or type of component thereof meets the technical requirements and successfully undergoes the checks set out in Annex II.'
- 2. In the second subparagraph of Article 3 (1), the reference to Annex II is replaced by a reference to Annex III.
- 3. The following Article is inserted:

'Article 6a

Articles 3 to 6 shall apply *mutatis mutandis* to the EEC type-approval of replacement exhaust systems or components thereof as separate technical units as defined in Article 2 (b).

In such cases, the model certificate referred to in Article 3 shall be replaced by the model EEC type-approval certificate set out in Annex IV and the modification of one of the components or characteristics mentioned in Annex I, section 1.1, as referred to in Article 6, shall be replaced by the modification of one of the characteristics referred to in Annex I, section 1.3.'

4. The Annexes are amended and supplemented in accordance with the Annex hereto.

Article 2

- 1. As from 1 October 1989:
- (a) no Member State may, on grounds concerning the permissible sound level and the original equipment exhaust system, refuse national type-approval for a type of motorcycle or EEC type-approval or national type-approval for a type of replacement exhaust system or type of component of such a system where such systems or components are regarded as separate technical units:
 - if the motorcycle complies with the requirements of Annex I to Directive 78/1015/EEC, as amended by

- this Directive, regarding the sound level and original equipment exhaust system,
- if the replacement exhaust system or components thereof as separate technical units comply with the requirements of Annex II to Directive 78/1015/EEC, as amended by this Directive;
- (b) no Member State may, on grounds concerning the permissible sound level and the original equipment exhaust system, refuse or prohibit the sale, registration, putting into service or use of motorcycles, or refuse or prohibit the placing on the market or use of replacement exhaust systems or components thereof as separate technical units:
 - if the motorcycles comply with the requirements of Annex I to Directive 78/1015/EEC, as amended by this Directive, regarding the sound level and original equipment exhaust system,
 - if the replacement exhaust systems or components thereof as separate technical units comply with the requirements of Annex II to Directive 78/1015/EEC, as amended by this Directive.
- 2. As from 1 October 1990:
- (a) Member States may no longer issue the certificate provided for in Article 3 (1) of Directive 78/1015/EEC for a type of motorcycle regarding the permissible sound level and original equipment exhaust system, nor the certificate provided for *mutatis mutandis* in that same paragraph of the Directive concerned, for a type of replacement exhaust system or component thereof as separate technical units, if they do not comply with the provisions of Directive 78/1015/EEC, as amended by this Directive;
- (b) Member States may, on grounds concerning the permissible sound level and original equipment exhaust system, refuse national type-approval for a type of motorcycle or type of replacement exhaust system or type of component of such a system as separate technical units, if they do not comply with the provisions of Directive 78/1015/EEC, as amended by this Directive,
 - Member States may, on grounds concerning the permissible sound level and the original equipment exhaust system, refuse or prohibit the sale, registration, putting into service or use of motorcycles, or the placing on the market and use of replacement exhaust systems or components thereof as separate technical units, if they do not comply with the provisions of Directive 78/1015/EEC, as amended by this Directive.
- 3. As from 1 October 1991, Member States may prohibit the initial putting into service of motorcycles the sound level

and original equipment exhaust system of which do not comply with the provisions of Annex I to Directive 78/1015/EEC, as amended by this Directive.

Article 3

By 1 October 1989, Member States shall adopt and publish the provisions necessary to comply with this Directive. They shall forthwith inform the Commission thereof.

They shall apply those provisions from 1 October 1989.

Article 4

This Directive is addressed to the Member States.

Done at Brussels, 13 March 1989.

For the Council
The President
P. SOLBES

ANNEX

Annex I is amended as follows:

Sections 3.2 to 3.4.3 are replaced by the following:

- '3.2. A diagram of the exhaust system must be attached to the certificate referred to in Annex
- 3.3. Every silencer must bear markings and inscriptions that comply with point 3 of Annex II.
- 3.4. Fibrous absorbent material must be asbestos-free and may be used in the construction of silencers only if suitable devices ensure that the fibrous absorbent material is kept in place for the whole time that the silencer is being used and it meets the requirements of any one of sections 3.4.1, 3.4.2 or 3.4.3.
- 3.4.1. After removal of the fibrous material, the sound level must comply with the requirements of 2.1.1.
- 3.4.2. The fibrous absorbent material may not be placed in those parts of the silencer through which the exhaust gases pass and must comply with the following requirements.
- 3.4.2.1. The material must be heated at a temperature of 650 \pm 5 °C for four hours in a furnace without reduction in average length, diameter or bulk density of the fibre.
- 3.4.2.2. After heating at 650 \pm 5 °C for one hour in a furnace, at least 98 % of the material must be retained in a sieve of nominal aperture size 250 μ m complying with ISO standard 3310/1 when tested in accordance with ISO standard 2599.
- 3.4.2.3. The loss in weight of the material must not exceed 10,5% after soaking for 24 hours at 90 ± 5 °C in a synthetic condensate of the following composition:
 - 1 N hydrobromic acid (HBr): 10 ml
 - 1 N sulphuric acid (H₂SO₄): 10 ml

Distilled water to make up to 1 000 ml.

Note: The material must be washed in distilled water and dried for one hour at 105 °C before weighing.

- 3.4.3. Before the system is tested in accordance with section 2.1 of this Annex, it must be put into a normal state for road use by one of the following conditioning methods:
- 3.4.3.1. conditioning by continuous road operation
- 3.4.3.1.1. according to the classes of motorcycles, the minimum distances to be completed during conditioning are:

Distance (km)
4 000
6 000
8 000

- 3.4.3.1.2. 50% ± 10% of this conditioning cycle consists of town driving and the remainder of long-distance runs at high speed; the continuous road cycle may be replaced by a corresponding test-track programme.
- 3.4.3.1.3. The two speed regimes must be alternated at least six times.
- 3.4.3.1.4. The complete test programme must include a minimum of 10 breaks of at least three hours' duration in order to reproduce the effects of cooling and condensation.

- 3.4.3.2. Conditioning by pulsation
- 3.4.3.2.1. The exhaust system or components thereof must be fitted to the motorcycle or to the engine. In the former case, the motorcycle must be mounted on a roller dynamometer. In the second case, the engine must be mounted on a test bench.

The test apparatus, a detailed diagram of which is shown in Figure 1, is fitted at the outlet of the exhaust system. Any other apparatus providing equivalent results is acceptable.

- 3.4.3.2.2. The test equipment must be adjusted so that the flow of exhaust gases is alternatively interrupted and restored 2 500 times by a rapid-action valve.
- 3.4.3.2.3. The valve must open when the exhaust gas back-pressure, measured at least 100 mm downstream of the intake flange, reaches a value of between 0,35 and 0,40 bar. Should such a figure be unattainable because of the engine characteristics, the valve must open when the gas back-pressure reaches a level equivalent to 90% of the maximum that can be measured before the engine stops. It must close when this pressure does not differ by more than 10% from its stabilized value with the valve open.
- 3.4.3.2.4. The time-delay switch must be set for the duration of exhaust gases calculated on the basis of the requirements of 3.4.3.2.3.
- 3.4.3.2.5. Engine speed must be 75% of the speed (S) at which the engine develops maximum power.
- 3.4.3.2.6. The power indicated by the dynamometer must be 50 % of the full-throttle power measured at 75 % of engine speed (S).
- 3.4.3.2.7. Any drainage holes must be closed off during the test.
- 3.4.3.2.8. The entire test must be completed within 48 hours. If necessary, a cooling period must be allowed after each hour.
- 3.4.3.3. Conditioning on a test bench
- 3.4.3.3.1. The exhaust system must be fitted to an engine representative of the type fitted to the motorcycle for which the system is designed, and mounted on a test bench.
- 3.4.3.3.2. Conditioning consists of the specified number of test bench cycles for the class of motorcycle for which the exhaust system was designed. The number of cycles for each class of motorcycle is:

Class of motorcycle according to cylinder capacity in cm ³	Number of cycles
1. ≤ 80	6
$2. > 80 \leq 175$	9
3. > 175	. 12

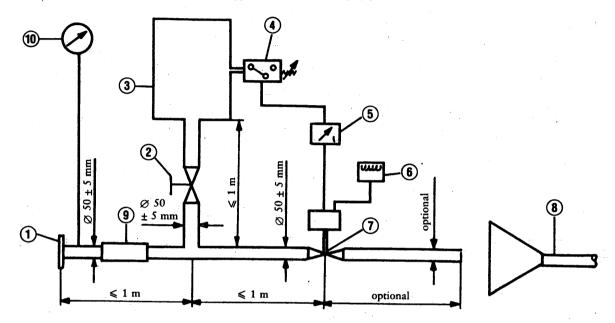
- 3.4.3.3.3 Each test-bench cycle must be followed by a break of at least six hours in order to reproduce the effects of cooling and condensation.
- 3.4.3.3.4. Each test-bench cycle consists of six phases. The engine conditions for and the duration of each phase are:

			Duration	n of phase
Phase	Conditions		Engines of less than 175 cm ³	Engines of not less than 175 cm ³
1	Idling		(minutes) 6	(minutes)
2	25 % load at 75 % S		40	50
3	50 % load at 75 % S		40	50
4	100 % load at 75 % S		30	10
5	50 % load at 100 % S		12	12
6	25 % load at 100 % S		22	22
-	1	otal time	2,5 hours	2,5 hours

3.4.3.3.5. During this conditioning procedure, at the request of the manufacturer, the engine and the silencer may be cooled in order that the temperature recorded at a point not more than 100 mm from the exhaust gas outlet does not exceed that measured when the motorcycle is running at 110 km/h or 75 % S in top gear. The engine and/or motorcycle speeds are determined to within + 3 %.

Figure 1

Test apparatus for conditioning by pulsation



- 1. Inlet flange or sleeve for connection to the rear of the test exhaust system.
- 2. Hand-operated regulating valve.
- 3. Compensating reservoir with a maximum capacity of 40 l and a filling time of not less that 1 second.
- 4. Pressure switch with an operating range of 0,05 to 2,5 bar.
- 5. Time delay switch.
- 6. Pulse counter.
- 7. Quick-acting valve, such as exhaust brake valve 60 mm in diameter, operated by a pneumatic cylinder with an output of 120 N at 4 bar. The response time, both when opening and closing, must not exceed 0,5 second.
- 8. Exhaust gas evaluation.
- 9. Flexible pipe.
- 10. Pressure gauge.

The following new Annex II is inserted after Annex I:

'ANNEX II

EEC TYPE-APPROVAL OF REPLACEMENT EXHAUST SYSTEMS OR COMPONENTS THEREOF AS SEPARATE TECHNICAL UNITS

0. SCOPE

This Annex applies to the EEC type-approval, as separate technical units within the meaning of Article 2 (b) of the Directive, of exhaust systems or components thereof intended to be fitted to one or more types of motorcycle as replacement parts.

1. DEFINITION

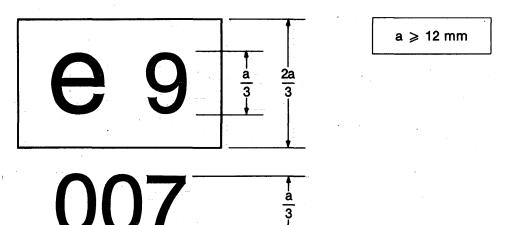
- 1.1. "Replacement exhaust system (silencer) or component thereof" means any exhaust system component as defined in section 1.2 of Annex I intended to be fitted to a motorcycle to replace that of the type fitted to the motorcycle when the certificate provided for in Article 3 was issued.
- 2. APPLICATION FOR EEC TYPE-APPROVAL
- 2.1. Applications for the EEC type-approval of replacement exhaust systems or components thereof as separate technical units are submitted by the manufacturer of the device or by his authorized representative.
- 2.2. For each type of replacement exhaust system (silencer) or component thereof for which EEC type-approval is requested, the application for type-approval must be accompanied by the following documents in triplicate, and by the following particulars:
- 2.2.1. description, in respect of the characteristics referred to in section 1.1 of Annex I, of the type(s) of motorcycle for which the device(s) or components(s) is/are intended.
 - The numbers and/or symbols specific to the type of engine and motorcycle must be given,
- 2.2.2. description of the replacement exhaust system stating the relative position of each of its components, together with the fitting instructions,
- 2.2.3. drawings of each component in order to ease their location and identification, and statement
 of materials used. These drawings must also indicate the intended location of the mandatory
 EEC type-approval number.
- 2.3. The applicant must submit, at the request of the technical authority:
- 2.3.1. two samples of the device for which EEC type-approval is requested,
- 2.3.2. an exhaust system conforming to that originally fitted to the motorcycle when the certificate provided for in Article 3 was issued,
- 2.3.3. a motorcycle representative of the type to which the exhaust system is to be fitted, supplied in such a condition that, when fitted with a silencer of the same type as was originally fitted, it meets the requirements of either of the following two sections:
- 2.3.3.1. if of a type which has been granted type-approval pursuant to Directive 78/1015/EEC:
 - during the test in motion, it does not exceed by more than 1 dB(A) the limit value laid down in section 2.1.1.1 of Annex I applicable to that type of motorcycle when it was type-approved, nor exceeds by more than 3 dB(A) the value obtained when the certificate stipulated in Article 3 (1) was issued,
 - during the stationary test, it does not exceed by more than 3 dB(A) the value obtained when the certificate stipulated in Article 3 (1) was issued;
- 2.3.3.2. if not of a type which has been granted type-approval, it does not exceed by more than 1 dB(A) the limit value laid down in section 2.1.1.1 of Annex I which would have applied to that type of motorcycle when it was first put into service;

2.3.4. — a separate engine identical to that fitted to the motorcycle referred to above, where the competent authorities consider it necessary.

3. MARKINGS AND INSCRIPTIONS

- 3.1. The replacement exhaust system or components thereof, but not the mounting parts and pipes, must bear:
- 3.1.1. the trade name or mark of the manufacturer of the exhaust system and its components,
- 3.1.2. the trade name given by the manufacturer,
- 3.1.3. the EEC type-approval number composed of a rectangle surrounding the letter "e" followed by the distinguishing number or letters of the Member State which issued the type-approval:
 - 1 for Germany,
 - 2 for France,
 - 3 for Italy,
 - 4 for the Netherlands,
 - 6 for Belgium,
 - 9 for Spain,
 - 11 for the United Kingdom,
 - 13 for Luxembourg,
 - 18 for Denmark,
 - 21 for Portugal,
 - EL for Greece,
 - IRL for Ireland.

It must also include an EEC type-approval number corresponding to the number of the EEC type-approval certificate issued for the type of exhaust system in question.



Graphics: The exhaust system or component thereof bearing the EEC type-approved mark shown above is a system or component type-approval in Spain (e 9) under the number 007.

- 3.2. The marks referred to in 3.1.1 and 3.1.3 and the name referred to in 3.1.2 must be indelible and clearly legible even when the exhaust system is fitted to the motorcycle.
- 3.3. A component may bear several type-approval numbers if it has been type-approved as a component of several replacement exhaust systems.
- 3.4. The replacement exhaust system must be supplied with packaging or labelling bearing the following:
- 3.4.1. the trade name or mark of the manufacturer of the replacement silencer and its
- 3.4.2. the address of the manufacturer or his authorized representative;
- 3.4.3. a list of the motorcycle models to which the replacement silencer is intended to be fitted.

- 3.5. The manufacturer must supply the following:
- 3.5.1. instructions describing in detail the correct methods of fitting to the motorcycle;
- 3.5.2. instructions on how the silencer should be maintained;
- 3.5.3. a list of component parts with the corresponding part numbers, excluding mounting parts.

4. EEC TYPE-APPROVAL

4.1. Where an application within the meaning of 2.1 is accepted, the competent authority prepares a certificate corresponding to the model shown in Annex IV. The type-approval number must be preceded by a rectangle surrounding the letter "e" followed by the distinguishing number or letters of the Member State which issued or refused the EEC type-approval.

5. SPECIFICATIONS

5.1. General specifications

The silencer must be designed, constructed and capable of being mounted so that:

- 5.1.1. the motorcycle complies with the requirements of the Directive under normal conditions of use, and in particular regardless of any vibrations to which it may be subjected;
- 5.1.2. it displays reasonable resistance to the corrosion phenomena to which it is exposed, with due regard to the normal conditions of use of the motorcycle,
- 5.1.3. the ground clearance provided by the silencer originally fitted, and the possible inclined position of the motorcycle, are not reduced,
- 5.1.4. unduly high temperatures do not exist at the surface,
- 5.1.5. its edges are not sharp or jagged,
- 5.1.6. adequate clearance of spring parts is provided,
- 5.1.7. adequate safety clearance of pipes is provided,
- 5.1.8. it is tamper-resistant in a way that is compatible with clearly-defined maintenance and installation requirements.

5.2. Specifications for sound levels

5.2.1. The acoustic efficiency of the replacement exhaust system or component thereof is checked in accordance with the methods described in sections 2.1.2, 2.1.3, 2.1.4 and 2.1.5 of Annex I.

If the replacement exhaust system or component thereof is fitted to the motorcycle referred to in section 2.3.3 of this Annex, the sound level values obtained must meet the following conditions:

5.2.1.1. it does not exceed the sound level values measured, in accordance with the provisions of 2.3.3, with the same motorcycle fitted with the original equipment silencer both during the test in motion and during the stationary test.

5.3. Checking of motorcycle performance

- 5.3.1. The replacement silencer must be such as to ensure that motorcycle performance is comparable to that achieved with the originally fitted silencer or component thereof.
- 5.3.2. The replacement silencer must be compared with an originally fitted silencer, also in new condition, fitted in turn to the motorcycle referred to in 2.3.3.
- 5.3.3. This check is carried out by measuring the engine power curve. The maximum power and the maximum power speed measured with the replacement silencer must not exceed the maximum power and maximum power speed measured under the same conditions with the original equipment exhaust system by more than 5%.

5.4. Additional provisions relating to silencers as separate technical units containing fibrous material

Fibrous material may not be used in the construction of these silencers unless the requirements set out in section 3.4 of Annex I are met.

- 6. CONFORMITY OF PRODUCTION
- 6.1. All silencers bearing the EEC type-approval mark in pursuance of the Directive must conform to the silencer type that has been approved and meet the requirements of section 5.
- 6.2. In order to check the conformity required in 6.1, a sample silencer bearing the EEC type-approval mark is taken from the production run. The production run is considered to comply with the provisions of the Directive if the sound levels measured in accordance with 5.2 do not exceed by more than 1 dB(A) the level measured during the EEC type-approval of that type of silencer.'

The following new Annex III is substituted for the former Annex II:

'ANNEX III

Name of administration

MODEL

SOUND LEVEL MEASUREMENT CERTIFICATE — MOTORCYCLE

(in accordance with Council Directive 78/1015/EEC of 23 November 1978 on the approximation of the laws of the Member States on the permissible sound level and exhaust system of motorcycles)

Drawn up on the basis of:

- 1. Motorcycle:
- 1.1. Manufacturer:
- 1.1.1. Authorized agent:
- 1.2. Type:
- 1.3. Model:
- 1.3.1. Version:
- 1.4. Frame No:
- 2. Engine:
- 2.1. Manufacturer:
- 2.2. Type:
- 2.3. Model:
- 2.4. Maximum output (indicate standard used): . . . (kW) at . . . r/min
- 2.5. Maximum design speed:
- Gears:

non-automatic gearbox/automatic gearbox (1)

- 4. Fitted with:
- 4.1. Exhaust silencer:

Manufacturer or authorized agent:

Model:

Type:

According to drawing No:

EEC type-approval number:

4.2. Intake silencer:

Manufacturer:

Model:

According to drawing No:

Type: EEC type-approval number:

4.3. Type size

⁽¹⁾ Delete whichever is inapplicable.

~		
5.	Measurement	•
J.	ivicasui cilicili.	Э,

5.1. Sound level of motorcycle in motion:

	Measurement results			
	left dB(A) (1)	right dB(A) (1)	Position of gear change	
First measurement				
Second measurement				
Third measurement		·		
Fourth measurement				
Test result:	7	dB(A)/E (3)		

5.2. Sound level of stationary motorcycle:

	dB(A)	Test engine speed r/min	Test conditions (2)
First measurement			
Second measurement			$n = \frac{S}{2}$
Third measurement			$n = \frac{3}{4} S$
Test result:		dB(A)/E (3)	, ,

- The type of motorcycle conforms/does not conform (2) with the requirements of Council Directive 78/1015/EEC.
- 7. Place:
- 8. Date:
- 9. Signature:

(2) Delete whichever is inapplicable.

The following new Annex IV is inserted after Annex III:

'ANNEX IV

MODEL

Maximum size: A4 (210 × 297 mm)

Name of administration

EEC TYPE-APPROVAL CERTIFICATE FOR A MOTORCYCLE REPLACEMENT EXHAUST SYSTEM OR COMPONENT(S) THEREOF AS SEPARATE TECHNICAL UNIT(S)

Technical unit: exhaust system	
EEC type-approval number of the technical unit (1):	

1.	Trade name or mark:	
2	Type	

⁽¹⁾ The values indicated are the measurements obtained minus 1 dB(A).

^{(3)-&}quot;E" indicates that measurements have been taken in accordance with Directive 78/1015/EEC.'

⁽¹⁾ Preceded by the rectangle surrounding the letter "e" followed by the distinguishing number or letters of the Member State which issued or refused the EEC type-approval.

3.	Manufacturer's name and address:			
4.	Where applicable, name and address of the manufacturer's authorized representative:			
5.	Composition of the technical unit:			
6.	Trade name or mark of the type(s) of motorcycle to which the silencer is to be fitted (1):			
7.	Type(s) of motorcycle ranging from serial No: to serial No:			
8.	Engine:			
8.1.	Cycle: two-stroke, four-stroke (2):			
8.2.	Total cylinder capacity:			
8.3.	Maximum engine power (indicate the standard used): kW at rev/min.			
9.	Number of gear ratios:			
10.	Gear ratios employed:			
11.	Final drive ratio(s):			
12.	Sound-level values:			
	- moving motorcycle dB(A), speed stabilized before acceleration at			
	km/h,			
	— stationary motorcycle			
13.	Any restrictions in respect of use and fitting requirements:			
	······································			
14.	Date on which the replacement exhaust system or component(s) thereof was submitted for EEC type-approval as a separate technical unit:			
15.	Technical service:			
16.	Date of the test report issued by that technical service:			
17.	Number of test report issued by that technical service:			
18.	EEC type-approval of the technical unit is hereby granted/refused (2):			
19.	Place:			
20.	Date:			
21.	Signature:			
22.	The following documents bearing the abovementioned EEC type-approval mark of the technical unit are attached to this communication (to be completed if necessary):			
23.				

⁽¹⁾ If several types are indicated, sections 7 to 14 inclusive must be completed in respect of each type.
(2) Delete where inapplicable.'