Regulation No 75 of the Economic Commission for Europe of the United Nations (UN/ECE) — Uniform provisions concerning the approval of pneumatic tyres for motor cycles and mopeds

Incorporating all valid text up to:

Supplement 13 to the Regulation in its original form — Date of entry into force: 24 October 2009

CONTENTS

1. SCOPE

This Regulation applies to new pneumatic tyres for vehicles of category L_1, L_2, L_3, L_4 and L_5.

However, it does not apply to tyre types designed exclusively for the 'off-road' use, which are marked 'NHS' (Not for Highway Service) and to tyre types designed exclusively for competitions.

2. DEFINITIONS

For the purpose of this Regulation:

2.1. 'Type of pneumatic tyre' means a category of pneumatic tyres which do not differ in such essential respects as:

2.1.1. The manufacturer;

2.1.2. Tyre size designation;

2.1.3. Category of use (normal: for normal highway service; special: for special applications such as on- and off-the-road, snow, moped);

2.1.4. Structure (diagonal or bias-ply, bias belted, radial);

2.1.5. Speed category;

2.1.6. Load capacity index;

2.1.7. Tyre cross-section.

2.2. 'Structure of a pneumatic tyre' means the technical characteristics of the tyre's carcass. The following structures of a pneumatic tyre are distinguished in particular:

2.2.1. 'Diagonal' or 'bias ply' describes a pneumatic tyre structure in which the ply cords extend to the beads and are laid at alternate angles substantially less than 90° to the centre line of the tread [1].

2.2.2. 'Bias belted' describes a pneumatic tyre structure of diagonal (bias-ply) type in which the carcass is restricted by a belt comprising two or more layers of substantially inextensible cord material laid at alternate angles close to those of the carcass.

2.2.3. 'Radial' describes a pneumatic tyre structure in which the ply cords extend to the beads and are laid substantially at 90° to the centreline of the tread, the carcass being stabilised by an essentially inextensible circumferential belt [1].

2.2.4. 'Reinforced' describes a pneumatic tyre structure in which the carcass is more resistant than that of the corresponding normal tyre.

2.3. 'Bead' means the part of a pneumatic tyre which is of such shape and structure as to fit the rim and hold the tyre on it [2].

2.4. 'Cord' means the strands forming the fabric of the plies in the pneumatic tyre [2].

[1] Applicable also to Regulation No 54.
[2] See the explanatory figure in the Appendix.

2.5. 'Ply' means a layer of rubber-coated parallel cords ([2]).

2.6. 'Carcass' means that part of a pneumatic tyre other than the tread and the rubber side walls which, when inflated, bears the load ([2]).

2.7. 'Tread' means that part of a pneumatic tyre which comes into contact with the ground, protects the carcass against mechanical damage and contributes to ground adhesion ([2]).

2.8. 'Side wall' means the part of a pneumatic tyre between the tread and the area designed to be covered by the rim flange ([2]).

2.9. 'Tread groove' means the space between two adjacent ribs or blocks in the tread pattern ([2]).

2.10. 'Principal groove' means the wide grooves situated in the central zone of the tread.

2.11. 'Section width (S)' means the linear distance between the outsides of the side walls of an inflated pneumatic tyre, excluding elevations due to labelling (marking), decoration or protective bands or ribs ([2]).

2.12. 'Overall width' means the linear distance between the outsides of the side walls of an inflated pneumatic tyre, including labelling (marking), decoration and protective bands or ribs ([2]); in the case of tyres where the tread is wider than the section width, the overall width corresponds to the tread width.

2.13. 'Section height (H)' means a distance equal to half the difference between the outer diameter of the tyre and the nominal rim diameter ([2]).

2.14. 'Nominal aspect ratio (Ra)' means the centuple of the number obtained by dividing the number expressing the section height (H) by the number expressing the nominal section width (S_1), both dimensions expressed in the same units.

2.15. 'Outer diameter (D)' means the overall diameter of an inflated new pneumatic tyre ([2]).

2.16. 'Tyre-size designation' is a designation showing:

2.16.1. The nominal section width (S_1) must be expressed in mm except in the case of types of tyre for which the size designation is shown in the first column of the tables in Annex 5 to this Regulation;

2.16.2. The nominal aspect ratio, except in the case of certain types of tyre, for which the size designation is shown in the first column of the tables in Annex 5 to this Regulation;

2.16.3. A conventional number 'd' denoting the nominal diameter of the rim and corresponding to its diameter expressed either by code (numbers below 100) or in millimetres' (numbers above 100).

2.16.3.1. The values in millimetres of the symbol 'd' when indicated by a code are as follows:

(in mm)

Symbol 'd' indicated by one or two figures according to the nominal rim diameter	Value of 'd'
4	102
5	127
6	152

(in mm)

Symbol 'd' indicated by one or two figures according to the nominal rim diameter	Value of 'd'
7	178
8	203
9	229
10	254
11	279
12	305
13	330
14	356
15	381
16	406
17	432
18	457
19	483
20	508
21	533
22	559
23	584

2.17. 'Nominal rim diameter (d)' means the diameter of the rim on which a tyre is designed to be mounted ([2]).

2.18. 'Rim' means the support for a tyre-and-tube assembly, or for a tubeless tyre, on which the tyre beads are seated ([2]).

2.18.1. 'Tyre to rim fitment configuration' means the type of rim to which the tyre is designed to be fitted. In the case of non-standard rims this will be identified by a symbol applied to the tyre.

2.19. 'Theoretical rim' means the rim whose width would be equal to X times the nominal section width of a tyre. The value of X shall be specified by the manufacturer of the tyre.

2.20. 'Measuring rim' means the rim on which a tyre is required to be fitted for size measurements.

2.21. 'Test rim' means the rim on which a tyre is required to be fitted for testing.

2.22. 'Chunking' means the breaking away of pieces of rubber from the tread.

2.23. 'Cord separation' means the parting of the cords from their rubber coating.

2.24. 'Ply separation' means the parting of adjacent plies.

2.25. 'Tread separation' means the pulling away of the tread from the carcass.

2.26. 'Load capacity index' means a figure associated with the maximum load a tyre can carry at the speed corresponding to its speed symbol according to the operating conditions specified by the tyre manufacturer. A list of those indices and of the corresponding loads is given in Annex 4 to this Regulation.

2.27. 'Table of tyre load capacities at various speeds' means the table in Annex 8 which shows, by reference to indices of load capacity and of capacity at nominal speed, load variations of a tyre if used at speeds other than that corresponding to the index of its nominal speed category.

2.28. 'Speed category' means:

2.28.1. The speeds, expressed by the speed category symbol as shown in the table in paragraph 2.28.2.

2.28.2. The speed categories are as shown in the table below:

(km/h)

Speed category symbol	Corresponding speed
B	50
F	80
G	90
J	100
K	110
L	120
M	130
N	140
P	150
Q	160
R	170
S	180
T	190
U	200
H	210
V	240
W	270

2.28.3. Tyres suitable for maximum speeds in excess of 240 km/h are identified by means of letter codes 'V' or 'Z' (see paragraph 2.33.3) placed within the tyre size designation in front of the indications of the structure (see paragraph 3.1.3).

2.29. 'Snow tyre' means a tyre whose tread pattern and whose structure are primarily designed to ensure in mud and fresh or melting snow a performance better than that of an ordinary (road-type) tyre. The tread pattern of a snow tyre generally consists of groove (rib) and/or solid-block elements more widely spaced than on an ordinary (road-type) tyre.

2.30. 'MST' means 'multiservice tyre', suitable both on and off road.

2.31. 'Moped tyre' means a tyre designed for the equipment of mopeds (categories L_1 and L_2).

2.32. 'Motor cycle tyre' means a tyre designed primarily for the equipment of motor cycles (categories L_3, L_4 and L_5). However, they may also equip mopeds (categories L_1 and L_2) and light trailers (category 01).

2.33. 'Maximum load rating' means the maximum mass the tyre is rated to carry.

2.33.1. For speeds lower or equal to 130 km/h, the maximum load rating must not exceed the percentage of the value associated with the relevant load capacity index of the tyre as indicated in the table 'Load capacity variation with speed' (see paragraph 2.27) with reference to the speed category symbol of the tyre and the speed capability of the vehicle to which the tyre is fitted.

2.33.2. For speeds above 130 km/h but not exceeding 210 km/h, the maximum load rating must not exceed the value of the mass associated with the load capacity index of the tyre.

2.33.3. For speeds above 210 km/h but not exceeding 270 km/h, the maximum load rating must not exceed the percentage of the mass, associated with the load capacity index of the tyre, indicated in the table below with reference to the speed category symbol of the tyre and the maximum design speed of the vehicle to which the tyre is to be fitted:

Maximum speed km/h (***)	Maximum Load Rating (%)	
	Speed Category Symbol V	Speed Category Symbol W (**)
210	100	100
220	95	100
230	90	100
240	85	100
250	(80) (*)	95
260	(75) (*)	85
270	(70) (*)	75

(*) Applicable only to tyres identified by means of letter code 'V' within the size designation and up to the maximum speed specified by the tyre manufacturer.
(**) Applicable also to tyres identified by means of letter code 'Z' within the size designation.
(***) For intermediate speeds linear interpolation of maximum load rating is allowed.

2.33.4. For speeds in excess of 270 km/h, the maximum load rating must not exceed the mass specified by the tyre manufacturer with reference to the speed capacity of the tyre.

For intermediate speeds between 270 km/h and the maximum speed permitted by the tyre manufacturer, a linear interpolation of the maximum load rating applies.

3. MARKINGS

3.1. Pneumatic tyres submitted for approval shall bear on at least one side wall the following markings:

3.1.1. The trade name or mark;

3.1.2. The tyre size designation as defined in paragraph 2.16 of this Regulation;

3.1.3. An indication of the structure as follows:

3.1.3.1. On diagonal (bias-ply) tyres, no marking, or the letter 'D',

3.1.3.2. On bias-belted tyres, the letter 'B' placed in front of the rim-diameter marking, and in addition the words 'BIAS-BELTED' can be added,

3.1.3.3. On radial-ply tyres, the letter 'R' placed in front of the rim-diameter marking, and, the word 'RADIAL' can be added.

3.1.4. An indication of the tyre's speed category by means of the symbol shown in paragraph 2.28.2 above;

3.1.5. The load-capacity index as defined in paragraph 2.26 above;

3.1.6. The word 'TUBELESS' if the tyre is designed for use without an inner tube;

3.1.7. The word 'REINFORCED' or 'REINF' if the tyre is a reinforced tyre;

3.1.8. The date of manufacture in the form of a group of four digits, the first two showing the week and the last two the year of manufacture. This marking, may be affixed to one side wall only.

3.1.9. The inscription of 'M + S' or 'M.S' or 'M & S' in the case of a snow tyre. The inscription 'DP' (I.E. Dual Purpose) is accepted as a permitted alternative.

3.1.10. The inscription MST in the case of multiservice tyres.

3.1.11. The inscription 'MOPED' (or alternatively 'CYCLOMOTEUR' or 'CICLOMOTORE') in the case of moped tyres.

3.1.12. An identification of the tyre to rim fitment configuration, when it differs from the standard configuration, immediately after the rim diameter marking referred to in paragraph 2.16.3 of this Regulation.

In the case of tyres intended to be fitted to rims having a diameter equivalent to code 13 (330 mm) or above, this inscription shall be 'M/C'. This requirement shall not apply to any tyre sizes listed in the tables of Annex 5 to this Regulation.

3.1.13. Tyres suitable for speeds above 240 km/h must be marked with the appropriate letter code 'V' or 'Z', as applicable (see paragraph 2.33.3) in front of the indication of the structure (see paragraph 3.1.3).

3.1.14. Tyres suitable for speeds above 240 km/h or (270 km/h respectively) must bear, within parenthesis, the marking of the load capacity index (see paragraph 3.1.5) applicable at a speed of 210 km/h (or 240 km/h respectively) and a reference speed category symbol (see paragraph 3.1.4) as follows:

'V' in case of tyres identified with the letter code 'V' within the size designation.

'W' in case of tyres identified with the letter code 'Z' within the size designation.

3.2. Tyres shall provide adequate space for the approval mark, as shown in Annex 2 to this Regulation.

3.3. Annex 3 to this Regulation gives an example of the tyre markings.

3.4. The markings referred to in paragraph 3.1 and the approval mark prescribed in paragraph 5.4 of this Regulation shall be moulded on, to or into the tyres. They shall be clearly legible.

4. APPLICATION FOR APPROVAL

4.1. The application for approval of a type of pneumatic tyre shall be submitted by the holder of the trade name or mark or by his duly accredited representative. It shall specify:

4.1.1. The tyre-size designation as defined in paragraph 2.16 of this Regulation;

4.1.2. The trade name or mark;

4.1.3. The category of use (normal, special, snow or moped);

4.1.4. Structure: diagonal (bias ply), bias belted or radial;

4.1.5. The speed category;

4.1.6. The load-capacity index of the tyre;

4.1.7. Whether the tyre is to be used with or without an inner tube;

4.1.8. Whether the tyre is 'normal' or 'reinforced';

4.1.9. The ply-rating number of tyres for motor cycle derivatives (see table 5 of Annex 5 to this Regulation) ([3]);

4.1.10. The overall dimensions: overall section width, and overall diameter;

4.1.11. The rims on which the tyre can be mounted;

4.1.12. The measuring rim and test rim;

4.1.13. The test and measurement pressures;

4.1.14. The factor X referred to in paragraph 2.19 above;

4.1.15. For tyres identified by means of letter code 'V' within the size designation and suitable for speeds over 240 km/h or for tyres identified by means of letter code 'Z' within the size designation and suitable for speeds over 270 km/h, the maximum speed permitted by the tyre manufacturer and the load carrying capacity allowed for that maximum speed.

4.2. The application for approval shall be accompanied (all in triplicate) by a sketch, or a representative photograph, which identify the tyre tread pattern and a sketch of the envelope of the inflated tyre mounted on the measuring rim showing the relevant dimensions (see paragraphs 6.1.1 and 6.1.2) of the type submitted for approval. It shall also be accompanied either by the test report issued by the approved test laboratory or by one or two samples of the tyre type, at the discretion of the competent authority. Drawings or photographs of the side wall and tread of the tyre shall be submitted once production has been established, no later than 1 year after the date of issue of the type approval.

([3]) From the date of entry into force of Supplement 8 to this Regulation no new approvals for these tyres should be issued pursuant to Regulation No 75. These tyre sizes are now included in Regulation No 54.

4.3. Where a tyre manufacturer submits application for type approval for a range of tyres, it is not considered necessary to carry out a load/speed test on every type of tyre in the range. Worst case selection may be made at the discretion of the approval authority.

5. APPROVAL

5.1. If the pneumatic tyre submitted for approval in pursuance of this Regulation meets the requirements of paragraph 6 below, approval of that type of tyre shall be granted.

5.2. An approval number shall be assigned to each type approved. Its first two digits (at present 00 for the Regulation in its original form) shall indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval. The number so assigned shall not be assigned by the same Contracting Party to another type of pneumatic tyre.

5.3. Notice of approval or of extension or of refusal or withdrawal of approval of a type of pneumatic tyre pursuant to this Regulation shall be communicated to the Parties to the Agreement applying this Regulation, by means of a form conforming to the model in Annex 1 to this Regulation.

5.3.1. For tyres suitable for speeds above 240 km/h, the maximum speed permitted and the relevant load rating are specified under item 10 of Annex 1.

5.4. There shall be affixed conspicuously to every pneumatic tyre conforming to a type of tyre approved under this Regulation, in the space referred to in paragraph 3.2 above, and in addition to the markings prescribed in paragraph 3.1 above, an international approval mark consisting of:

5.4.1. A circle surrounding the letter 'E' followed by the distinguishing number of the country which has granted approval ([4]);

5.4.2. The number of this Regulation, followed by the letter 'R', a dash and the type approval number.

5.5. The approval mark shall be clearly legible and be indelible.

5.6. Annex 2 to this Regulation gives an example of the arrangement of the approval mark.

6. REQUIREMENTS

6.1. Dimensions of tyres

6.1.1. Section width of a tyre

6.1.1.1. The section width is obtained by means of the following formula:

$$S = S_1 + K\,(A - A_1)$$

([4]) 1 for Germany, 2 for France, 3 for Italy, 4 for the Netherlands, 5 for Sweden, 6 for Belgium, 7 for Hungary, 8 for the Czech Republic, 9 for Spain, 10 for Serbia, 11 for the United Kingdom, 12 for Austria, 13 for Luxembourg, 14 for Switzerland, 15 (vacant), 16 for Norway, 17 for Finland, 18 for Denmark, 19 for Romania, 20 for Poland, 21 for Portugal, 22 for the Russian Federation, 23 for Greece, 24 for Ireland, 25 for Croatia, 26 for Slovenia, 27 for Slovakia, 28 for Belarus, 29 for Estonia, 30 (vacant), 31 for Bosnia and Herzegovina, 32 for Latvia, 33 (vacant), 34 for Bulgaria, 35 (vacant), 36 for Lithuania, 37 for Turkey, 38 (vacant), 39 for Azerbaijan, 40 for The former Yugoslav Republic of Macedonia, 41 (vacant), 42 for the European Union (Approvals are granted by its Member States using their respective ECE symbol), 43 for Japan, 44 (vacant), 45 for Australia, 46 for Ukraine, 47 for South Africa, 48 for New Zealand, 49 for Cyprus, 50 for Malta, 51 for the Republic of Korea, 52 for Malaysia, 53 for Thailand, 54 and 55 (vacant), 56 for Montenegro, 57 (vacant) and 58 for Tunisia. Subsequent numbers shall be assigned to other countries in the chronological order in which they ratify or accede to the Agreement Concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

where:

S is the 'section width' expressed in millimetres and measured on the measuring rim;

S_1 is the 'nominal section width' (in millimetres) as shown on the side wall of the tyre in the designation of the tyre as prescribed;

A is the width (expressed in millimetres) of the measuring rim, as shown by the manufacturer in the descriptive note;

A_1 is the width (expressed in millimetres) of the theoretical rim;

A_1 shall be taken to equal S_1 multiplied by the Factor X specified by the manufacturer;

K shall be taken to equal 0,4.

6.1.1.2. However, for types of tyres for which the size designation is shown in the first column of the tables in Annex 5 to this Regulation, the section width shall be allowed to be that given opposite the tyre designation in the tables.

6.1.2. Outer diameter of a tyre

6.1.2.1. The outer diameter of a tyre is obtained by means of the following formula:

$D = d + 2H$

where:

D is the outer diameter expressed in millimetres;

d is the conventional number defined in paragraph 2.16.3 above expressed in millimetres;

H is the nominal section height in millimetres and is equal to:

$H = S_1 \times 0{,}01\ Ra$

where:

S_1 is the nominal section width (in millimetres); and

Ra is the nominal aspect ratio;

all as shown on the side wall of the tyre in the tyre designation in conformity with the requirements of paragraph 3.4 above.

6.1.2.2. However, for types of tyres for which the size designation is shown in the first column of the tables in Annex 5 to this Regulation, the outer diameter shall be allowed to be that given opposite the tyre designation in the tables.

6.1.3. Method of measuring pneumatic tyres

The dimensions of pneumatic tyres shall be measured by the procedure described in Annex 6 to this Regulation.

6.1.4. Tyre section-width specifications

6.1.4.1. The overall width of a tyre may be less than the section width S determined pursuant to paragraph 6.1.1 above.

6.1.4.2. It may exceed that value up to the value shown in Annex 5 or for sizes not included in Annex 5 by the following percentages:

6.1.4.2.1. For normal and snow service:

(a) rim diameter code 13 and above: + 10 per cent;

(b) rim diameter codes up to 12 inclusive: + 8 per cent.

6.1.4.2.2. For special service tyres which are suitable for limited road use and are marked MST: 25 per cent.

6.1.5. Tyre outer-diameter specifications

6.1.5.1. The outer diameter of a tyre must not be outside the values Dmin and Dmax specified in Annex 5.

6.1.5.2. For sizes not listed in Annex 5 the outer diameter of a tyre must not be outside the values Dmin and Dmax obtained from the following formulae:

$$Dmin = d + (2H \times a)$$

$$Dmax = d + (2H \times b)$$

where:

H and d are as defined in paragraph 6.1.2.1 and a and b are as specified in paragraphs 6.1.5.2.1 and 6.1.5.2.2 respectively.

6.1.5.2.1. For normal highway service tyres and snow tyres a

Rim diameter code 13 and above:	0,97
Rim diameter codes up to 12 inclusive:	0,93
For special service tyres:	1,00;

6.1.5.2.2. For normal highway service tyres b

Rim diameter code 13 and above:	1,07
Rim diameter codes up to 12 inclusive:	1,10
For snow tyres and special service tyres:	1,12.

6.2. Load/speed performance test

6.2.1. The pneumatic tyre shall undergo a load/speed performance test carried out by the procedure described in Annex 7 to this Regulation.

6.2.1.1. Where application is made for tyres identified by means of letter code 'V' within the size designation and suitable for speeds over 240 km/h or for tyres identified by means of letter code 'Z' within the size designation and suitable for speeds over 270 km/h (see paragraph 4.1.15), the above load/speed test is carried out on one tyre at the load and speed conditions marked within parenthesis on the tyre (see paragraph 3.1.14). Another load/speed test must be carried out on a second tyre of the same type at the load and speed conditions, if any, specified as maximum by the tyre manufacturer (see paragraph 4.1.15).

6.2.2. A tyre which after undergoing the load/speed test does not exhibit any tread separation, ply separation, cord separation, chunking or broken cords shall be deemed to have passed the test.

6.2.3. The outer diameter of the tyre, measured at least 6 hours after the load/speed performance test, must not differ by more than ± 3,5 per cent from the outer diameter as measured before the test.

6.2.4. The overall width of the tyre measured at the end of the load/speed performance test must not exceed the value determined in paragraph 6.1.4.2.

6.3. Dynamic growth of tyres

The tyres indicated in paragraph 1.1 of Annex 9 to this Regulation, which have passed the test for load/speed performance requirements in accordance with paragraph 6.2 above, shall be submitted to a dynamic growth test to be carried out in accordance with the procedure described in the said Annex.

7. MODIFICATIONS OF THE TYPE OF PNEUMATIC TYRE AND EXTENSION OF APPROVAL

7.1. Every modification of the type of pneumatic tyre shall be notified to the administrative department which approved the type of pneumatic tyre. The department may then either:

7.1.1. Consider that the modifications made are unlikely to have an appreciable adverse effect and that in any case, the pneumatic tyre still complies with the requirements; or

7.1.2. Require a further test report from the technical service responsible for conducting the tests.

7.1.3. A modification of the tread pattern of a tyre is deemed as not necessitating a repetition of the test specified in paragraph 6.2.

7.1.4. Extensions of approval for tyres suitable for speeds over 240 km/h for tyres identified by means of letter code 'V' within the size designation (or 270 km/h for tyres identified by means of letter code 'Z' within the size designation), aiming at certification for different maximum speeds and/or loads, are permitted provided that a new test report, related to the new maximum speed and load rating, is supplied by the technical service responsible for carrying out tests.

Such new load/speed capabilities must be specified in item 9 of Annex 1.

7.2. Confirmation or refusal of approval, specifying the alterations, shall be communicated by the procedure specified in paragraph 5.3 above to the Parties to the Agreement which apply this Regulation.

7.3. The competent authority granting the extension of approval shall assign a series number to each communication form drawn up for such an extension.

8. CONFORMITY OF PRODUCTION

The conformity of production procedures shall comply with those set out in the Agreement, Appendix 2 (E/ECE/324-E/ECE/TRANS/505/Rev.2), with the following requirements:

8.1. Tyres approved under this Regulation shall be so manufactured as to conform to the type approved, by meeting the requirements set forth in paragraph 6 above.

8.2. The authority which has granted type approval may at any time verify the conformity control methods applied in each production facility. For each production facility the normal frequency of these verifications shall be once every 2 years.

9. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

9.1. The approval granted in respect of a type of pneumatic tyre pursuant to this Regulation may be withdrawn if the requirements laid down in paragraph 8.1 above are not complied with or if the tyres taken from the series have failed to pass the tests prescribed in that paragraph.

9.2. If a Party to the Agreement applying this Regulation withdraws an approval it has previously granted, it shall forthwith so notify the other Contracting Parties applying this Regulation by means of a communication form conforming to the model in Annex 1 to this Regulation.

10. PRODUCTION DEFINITELY DISCONTINUED

If the holder of an approval completely ceases to manufacture a type of pneumatic tyre approved in accordance with this Regulation, he shall so inform the authority which granted the approval. Upon receiving the relevant communication that authority shall inform thereof the other Parties to the 1958 Agreement applying this Regulation by means of a communication form conforming to the model in Annex 1 to this Regulation.

11. NAMES AND ADDRESSES OF TECHNICAL SERVICES RESPONSIBLE FOR APPROVAL TESTS, AND OF ADMINISTRATIVE DEPARTMENTS

11.1. The Parties to the Agreement which apply this Regulation shall communicate to the United Nations Secretariat the names and addresses of the technical services responsible for approval tests and of the administrative departments which grant approval and to which forms certifying approval, or extension, or refusal or withdrawal of approval, issued in other countries, are to be sent.

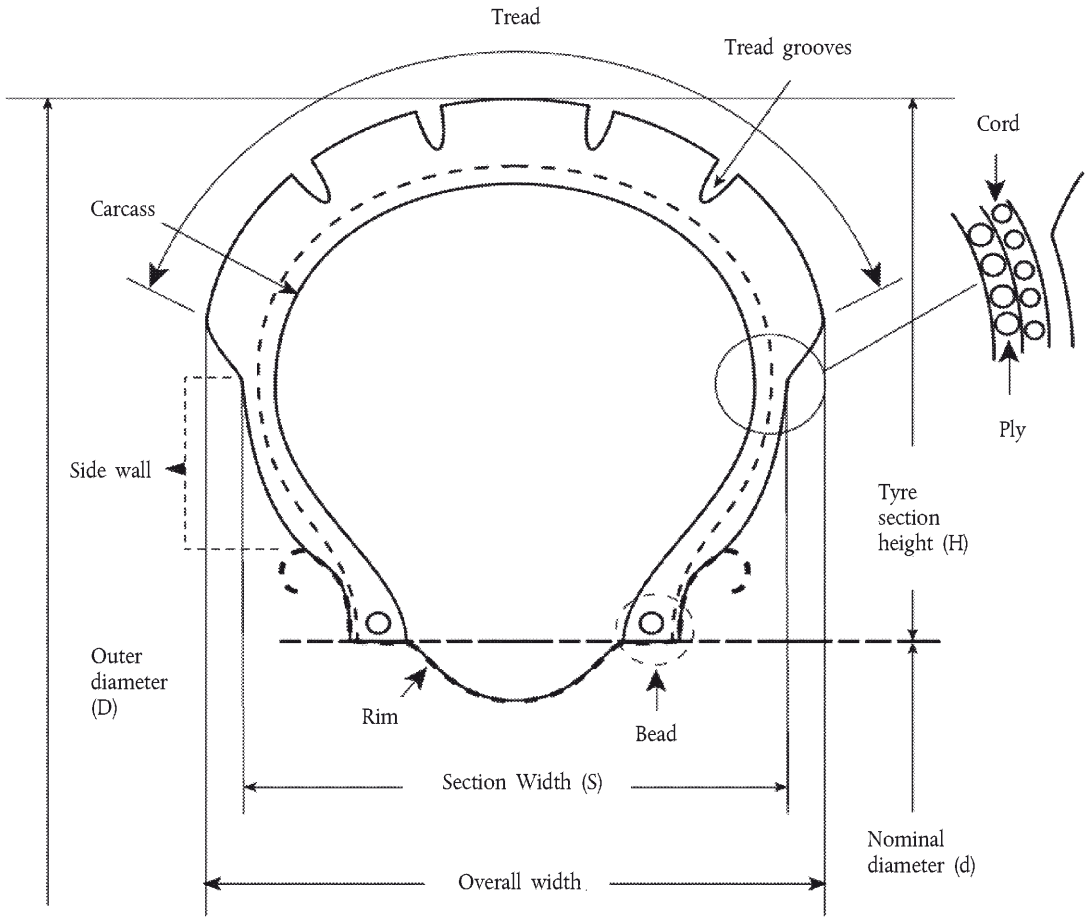
11.2. The Parties to the Agreement which apply this Regulation may use laboratories of tyre manufacturers and may designate, as approved, test laboratories among those which are situated on their territory or on the territory of another Party to the Agreement, subject to a preliminary agreement to the procedure by the competent administrative department of the latter.

11.3. Where a Party to the Agreement applies paragraph 11.2 above, it may, if it so desires, be represented at the tests by one or more persons of its choice.

Appendix

EXPLANATORY FIGURE

(See paragraph 2 of the Regulation)



ANNEX 1

COMMUNICATION

(maximum format: A4 (210 x 297 mm))

issued by: Name of administration:

.....

.....

.....

concerning (2): APPROVAL GRANTED,
APPROVAL EXTENDED,
APPROVAL REFUSED,
APPROVAL WITHDRAWN,
PRODUCTION DEFINITELY DISCONTINUED,

of a type of pneumatic tyre for motor cycles and mopeds pursuant to Regulation No 75.

Approval No: ..... Extension No: .....

1. Manufacturer's name or trade mark(s) on the tyre type: .....
2. Tyre type designation by the manufacturer: .....
3. Manufacturer's name and address: .....
4. If applicable, name and address of manufacturer's representative: .....
5. Summarised description: .....

5.1. Tyre size designation: .....

5.2. Category of use: ordinary/snow/special/moped (2): .....

5.3. Structure: Diagonal/bias-belted/radial (2): .....

5.4. Speed category symbol: .....

5.5. Load-capacity index: .....

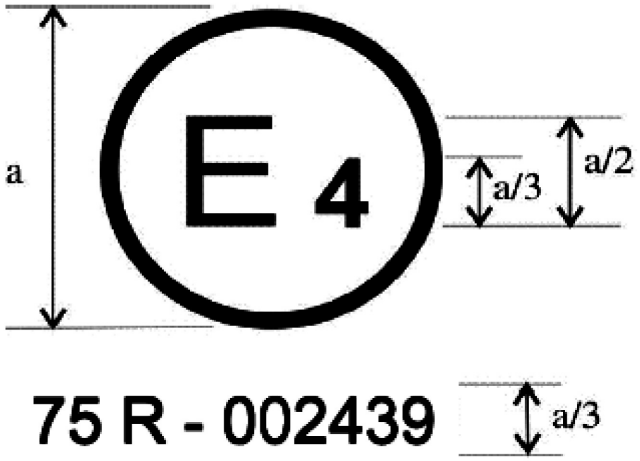
6. Technical service and, where applicable, test laboratory approved for purposes of approval or of verification of conformity: .....
7. Date of report issued by that service: .....
8. Number of report issued by that service: .....
9. Reason(s) of extension (if applicable): .....
10. Any remarks: .....
11. Place: .....
12. Date: .....
13. Signature: .....
14. Annexed to this communication is a list of documents in the approval file deposited at the Administrative Services having delivered the approval and which can be obtained upon request.

(1) Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).

(2) Strike out what does not apply.

ANNEX 2

ARRANGEMENT OF THE APPROVAL MARK



a = 8 mm (min.)

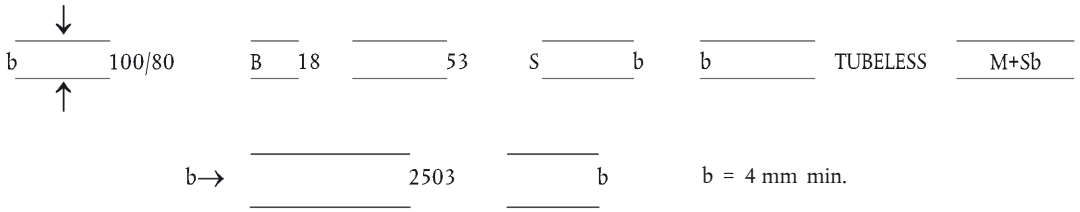
The above approval mark affixed to a pneumatic tyre shows that the type of tyre concerned for motor cycles and mopeds has been approved in the Netherlands (E4) pursuant to Regulation No 75 under approval number 002439. The first two digits of the approval number indicate that the approval was granted in accordance with the requirements of Regulation No 75 in its original form.

Note: The approval number must be placed close to the circle and either above or below the 'E' or to the left or right of that letter. The digits of the approval number must be on the same side of the 'E' and face in the same direction. The use of Roman numerals as approval numbers should be avoided so as to prevent any confusion with other symbols.

ANNEX 3

ARRANGEMENT OF TYRE MARKINGS

Example of the markings to be borne by types of tyres placed on the market after the entry into force of this Regulation



These markings define a pneumatic tyre:

— Having a nominal section width of 100,

— Having a nominal aspect ratio of 80,

— Having a bias-belted structure,

— Having a nominal rim diameter of 457 mm, for which the code is l8,

— Having a load capacity of 206 kg, corresponding to load index 53 in Annex 4 to this Regulation,

— Of speed category S (maximum speed 180 km/h),

— For fitting without an inner tube ('tubeless'),

— Snow tyre manufactured in the 25th week of the year 2003.

The positioning and order of the markings constituting the tyre designation shall be the following:

(a) The size designation, comprising the nominal section width, the nominal aspect ratio, the type-of-structure symbol (where applicable) and the nominal rim diameter shall be grouped as shown in the above example: 100/80Bl8;

(b) The load index and the speed-category symbol shall be placed together near the size designation. They may either follow it or be placed above or below it;

(c) The markings 'TUBELESS' and 'REINFORCED' or 'REINF' and 'M + S' and 'MST' and/or 'MOPED' (or CYCLOMOTEUR or CICLOMOTORE) may be at a distance from the size designation symbol;

(d) In case of tyres suitable for speeds above 240 km/h the letter code 'V' or 'Z' as applicable, must be marked in front of the marking of structure (e.g. 140/60ZR18). The reference load capacity index and speed category symbol must be marked within parenthesis as applicable (see paragraph 3.1.14).

ANNEX 4

LOAD CAPACITY INDEX/MAXIMUM MASS CORRESPONDENCE

A = Load capacity index

B = Maximum corresponding mass (kg)

A	B
16	71
17	73
18	75
19	77,5
20	80
21	82,5
22	85
23	87,5
24	90
25	92,5
26	95
27	97
28	100
29	103
30	106
31	109
32	112
33	115
34	118
35	121
36	125
37	128
38	132
39	136
40	140
41	145
42	150
43	155
44	160
45	165
46	170
47	175

A	B
48	180
49	185
50	190
51	195
52	200
53	206
54	212
55	218
56	224
57	230
58	236
59	243
60	250
61	257
62	265
63	272
64	280
65	290
66	300
67	307
68	315
69	325
70	335
71	345
72	355
73	365
74	375
75	387
76	400
77	412
78	425
79	437

A	B
80	450
81	462
82	475
83	487
84	500
85	515

A	B
86	530
87	545
88	560
89	580
90	600

ANNEX 5

TYRE SIZE DESIGNATION AND DIMENSIONS

Table 1

Tyres for motor cycles

Sizes with rim diameter code 12 and below

Tyre size	Measuring rim width (Code)	Overall diameter (mm)			Section width (mm)	Maximum overall width (mm)
		D.min	D	D.max		
2.50 – 8		328	338	352		
2.50 – 9		354	364	378		
2.50 – 10	1.50	379	389	403	65	70
2.50 – 12		430	440	451		
2.75 – 8		338	348	363		
2.75 – 9	1.75	364	374	383	71	77
2.75 – 10		389	399	408		
2.75 – 12		440	450	462		
3.00 – 4		241	251	264		
3.00 – 5		266	276	291		
3.00 – 6		291	301	314		
3.00 – 7		317	327	342		
3.00 – 8	2.10	352	362	378	80	86
3.00 – 9		378	388	401		
3.00 – 10		403	413	422		
3.00 – 12		454	464	473		
3.25 – 8		362	372	386		
3.25 – 9		388	398	412		
3.25 – 10	2.50	414	424	441	88	95
3.25 – 12		465	475	492		
3.50 – 4		264	274	291		
3.50 – 5		289	299	316		
3.50 – 6		314	324	341		
3.50 – 7	2.50	340	350	367	92	99
3.50 – 8		376	386	397		
3.50 – 9		402	412	430		
3.50 – 10		427	437	448		
3.50 – 12		478	488	506		

Tyre size	Measuring rim width (Code)	Overall diameter (mm)			Section width (mm)	Maximum overall width (mm)
		D.min	D	D.max		
4.00 – 5		314	326	346		
4.00 – 6		339	351	368		
4.00 – 7	2.50	365	377	394	105	113
4.00 – 8		401	415	427		
4.00 – 10		452	466	478		
4,00 – 12		505	517	538		
4.50 – 6		364	376	398		
4.50 – 7		390	402	424		
4.50 – 8		430	442	464		
4.50 – 9	3.00	456	468	490	120	130
4.50 – 10		481	493	515		
4.50 – 12		532	544	568		
5.00 – 8		453	465	481		
5.00 – 10	3.50	504	516	532	134	145
5.00 – 12		555	567	583		
6.00 – 6	4.00	424	436	464		
6.00 – 7		450	462	490	154	166
6.00 – 8		494	506	534		
6,00 – 9		520	532	562		

Table 1a

Tyres for mopeds

Sizes with rim diameter code 12 and below

Tyre size	Measuring rim width (Code)	Overall diameter (mm)			Section width (mm)	Maximum overall width (mm) [1]
		D.min	D	D.max [1]		
2 – 12	1.35	413	417	426	55	59
2-1/2 – 12	1.50	425	431	441	62	67
2-1/2 – 8	1.75	339	345	356	70	76
2-1/2 – 9	1.75	365	371	382	70	76
2-3/4 – 9	1.75	375	381	393	73	79
3 – 10	2.10	412	418	431	84	91
3 – 12	2.10	463	469	482	84	91

[1] Normal road (highway) service.

Table 2

Tyres for motor cycles

Normal section size

Tyre size	Measuring rim width (Code)	Overall diameter (mm)				Section width (mm)	Maximum overall width (mm)	
		D.min	D	D.max (1)	D.max (2)		(1)	(2)
1 3/4 – 19	1.20	582	589	597	605	50	54	58
2 – 14		461	468	477	484			
2 – 15		486	493	501	509			
2 – 16		511	518	526	534			
2 – 17		537	544	552	560			
2 – 18	1.35	562	569	577	585	55	58	63
2 – 19		588	595	603	611			
2 – 20		613	620	628	636			
2 – 21		638	645	653	661			
2 – 22		663	670	680	686			
2 1/4 – 14		474	482	492	500			
2 1/4 – 15		499	507	517	525			
2 1/4 – 16		524	532	540	550			
2 1/4 – 17		550	558	566	576			
2 1/4 – 18	1.50	575	583	591	601	62	66	71
2 1/4 – 19		601	609	617	627			
2 1/4 – 20		626	634	642	652			
2 1/4 – 21		651	659	667	677			
2 1/4 – 22		677	685	695	703			
2 1/2 – 14		489	498	508	520			
2 1/2 – 15		514	523	533	545			
2 1/2 – 16		539	548	558	570			
2 1/2 – 17		565	574	584	596			
2 1/2 – 18	1.60	590	599	609	621	68	72	78
2 1/2 – 19		616	625	635	647			
2 1/2 – 20		641	650	660	672			
2 1/2 – 21		666	675	685	697			
2 1/2 – 22		692	701	711	723			
2 3/4 – 14		499	508	518	530			
2 3/4 – 15		524	533	545	555			
2 3/4 – 16		549	558	568	580			
2 3/4 – 17		575	584	594	606			
2 3/4 – 18	1.85	600	609	621	631	75	80	86

Tyre size	Measuring rim width (Code)	Overall diameter (mm)				Section width (mm)	Maximum overall width (mm)	
		D.min	D	D.max (1)	D.max (2)		(1)	(2)
2 3/4 – 19		626	635	645	657			
2 3/4 – 20		651	660	670	682			
2 3/4 – 21		676	685	695	707			
2 3/4 – 22		702	711	721	733			
3 – 16		560	570	582	594			
3 – 17		586	596	608	620			
3 – 18	1.85	611	621	633	645	81	86	93
3 – 19		637	647	659	671			
3 1/4 – 16		575	586	598	614			
3 1/4 – 17		601	612	624	640			
3 1/4 – 18	2.15	626	637	651	665	89	94	102
3 1/4 – 19		652	663	675	691			

(1) Normal highway service.
(2) Special service and snow tyres.

Table 3

Tyres for motor cycles

Normal section sizes

Tyre size	Measuring rim width (Code)	Overall diameter (mm)				Section width (mm)	Maximum overall width (mm)		
		D.min	D	D.max (1)	D.max (2)		(3)	(4)	(5)
2.00 – 14		460	466	478					
2.00 – 15		485	491	503					
2.00 – 16		510	516	528					
2.00 – 17	1.20	536	542	554		52	57	60	65
2.00 – 18		561	567	579					
2.00 – 19		587	593	605					
2.25 – 14		474	480	492	496				
2.25 – 15		499	505	517	521				
2.25 – 16		524	530	542	546				
2.25 – 17	1.60	550	556	568	572	61	67	70	75
2.25 – 18		575	581	593	597				
2.25 – 19		601	607	619	623				

Tyre size	Measuring rim width (Code)	Overall diameter (mm)				Section width (mm)	Maximum overall width (mm)		
		D.min	D	D.max [1]	D.max [2]		[3]	[4]	[5]
2.50 – 14		486	492	506	508				
2.50 – 15		511	517	531	533				
2.50 – 16		536	542	556	558				
2.50 – 17	1.60	562	568	582	584	65	72	75	79
2.50 – 18		587	593	607	609				
2.50 – 19		613	619	633	635				
2.50 – 21		663	669	683	685				
2.75 – 14		505	512	524	530				
2.75 – 15		530	537	549	555				
2.75 – 16		555	562	574	580				
2.75 – 17	1.85	581	588	600	606	75	83	86	91
2.75 – 18		606	613	625	631				
2.75 – 19		632	639	651	657				
2.75 – 21		682	689	701	707				
3.00 – 14		519	526	540	546				
3.00 – 15		546	551	565	571				
3.00 – 16		569	576	590	596				
3.00 – 17	1.85	595	602	616	622	80	88	92	97
3.00 – 18		618	627	641	647				
3.00 – 19		644	653	667	673				
3.00 – 21		694	703	717	723				
3.00 – 23		747	754	768	774				
3.25 – 14		531	538	552	560				
3.25 – 15		556	563	577	585				
3.25 – 16		581	588	602	610				
3.25 – 17	2.15	607	614	628	636	89	98	102	108
3.25 – 18		630	639	653	661				
3.25 – 19		656	665	679	687				
3.25 – 21		708	715	729	737				
3.50 – 14		539	548	564	572				
3.50 – 15		564	573	589	597				
3.50 – 16		591	598	614	622				
3.50 – 17	2.15	617	624	640	648	93	102	107	113
3.50 – 18		640	649	665	673				
3.50 – 19		666	675	691	699				
3.50 – 21		716	725	741	749				

Tyre size	Measuring rim width (Code)	Overall diameter (mm)				Section width (mm)	Maximum overall width (mm)		
		D.min	D	D.max (1)	D.max (2)		(3)	(4)	(5)
3.75 – 16		601	610	626	634				
3.75 – 17		627	636	652	660				
3.75 – 18	2.15	652	661	677	685	99	109	114	121
3.75 – 19		678	687	703	711				
4.00 – 16		611	620	638	646				
4.00 – 17		637	646	664	672				
4.00 – 18	2.50	662	671	689	697	108	119	124	130
4.00 – 19		688	697	715	723				
4.25 – 16		623	632	650	660				
4.25 – 17		649	658	676	686				
4.25 – 18	2.50	674	683	701	711	112	123	129	137
4.25 – 19		700	709	727	737				
4.50 – 16		631	640	658	668				
4.50 – 17		657	666	684	694				
4.50 – 18	2.75	684	691	709	719	123	135	141	142
4.50 – 19		707	717	734	745				
5.00 – 16		657	666	686	698				
5.00 – 17		683	692	710	724				
5.00 – 18	3.00	708	717	735	749	129	142	148	157
5.00 – 19		734	743	761	775				

(1) Tyres for normal highway service.
(2) Tyres for special service and snow tyres.
(3) Tyres for normal highway service up to speed category P inclusive.
(4) Tyres for normal highway service above speed category P and snow tyres.
(5) Tyres for special service.

Table 4

Tyres for motor cycles

Low section sizes

Tyre size	Measuring rim width (Code)	Overall diameter (mm)				Section width (mm)	Maximum overall width (mm)		
		D.min	D	D.max (1)	D.max (2)		(3)	(4)	(5)
3.60 – 18		605	615	628	633				
	2.15					93	102	108	113
3.60 – 19		631	641	653	658				
4.10 – 18		629	641	654	663				
	2.50					108	119	124	130
4.10 – 19		655	667	679	688				

Tyre size	Measuring rim width (Code)	Overall diameter (mm)				Section width (mm)	Maximum overall width (mm)		
		D.min	D	D.max (1)	D.max (2)		(3)	(4)	(5)
5.10 – 16	3.00	615	625	643	651	129	142	150	157
5.10 – 17		641	651	670	677				
5.10 – 18		666	676	694	702				
4.25/85 – 18	2.50	649	659	673	683	112	123	129	137
4.60 – 16	2.75	594	604	619	628	117	129	136	142
4.60 – 17		619	630	642	654				
4.60 – 18		644	654	670	678				
6.10 – 16	4.00	646	658	678	688	168	185	195	203

(1) Tyres for normal highway service.
(2) Tyres for special service and snow tyres.
(3) Tyres for normal highway service up to speed category P inclusive.
(4) Tyres for normal highway service above speed category P and snow tyres.
(5) Tyres for special service.

Table 5

Tyres for motor cycle derivatives (1)

Tyre size	Measuring rim width (Code)	Overall diameter (mm)			Section width (mm)	Maximum overall width (mm)
		D.min	D	D.max		
3.00 – 8C	2.10	359	369	379	80	86
3.00 – 10C		410	420	430		
3.00 – 12C		459	471	479		
3.50 – 8C	2.50	376	386	401	92	99
3.50 – 10C		427	437	452		
3.50 – 12C		478	488	503		
4.00 – 8C	3.00	405	415	427	108	117
4.00 – 10C		456	466	478		
4.00 – 12C		507	517	529		
4.50 – 8C	3.50	429	439	453	125	135
4.50 – 10C		480	490	504		
4.50 – 12C		531	541	555		
5.00 – 8C	3.50	455	465	481	134	145
5.00 – 10C		506	516	532		
5.00 – 12C		555	567	581		

(1) From the date of entry into force of Supplement 8 to this Regulation no new approvals for these tyres should be issued pursuant to Regulation No 75. These tyre sizes are now included in Regulation No 54, Annex 5, Part I, Table A.

Table 6

Motor cycle tyres

Low pressure sizes

Tyre size	Measuring rim width (Code)	Overall diameter (mm)			Section width (mm)	Maximum overall width (mm)
		D.min	D	D.max		
5.4 – 10	4.00	474	481	487	135	143
5.4 – 12		525	532	547		
5.4 – 14		575	582	598		
5.4 – 16		626	633	649		
6.7 – 10	5.00	532	541	561	170	180
6.7 – 12		583	592	612		
6.7 – 14		633	642	662		

Table 7

Motor cycle tyres

Sizes and dimensions of American tyres

Tyre size	Measuring rim width (Code)	Overall diameter (mm)			Section width (mm)	Maximum overall width (mm)
		D.min	D	D.max		
MH90 – 21	1.85	682	686	700	80	89
MJ90 – 18	2.15	620	625	640	89	99
MJ90 – 19	2.15	645	650	665		
ML90 – 18	2.15	629	634	650	93	103
ML90 – 19	2.15	654	659	675		
MM90 – 19	2.15	663	669	685	95	106
MN90 – 18	2.15	656	662	681	104	116
MP90 – 18	2.15	667	673	692	108	120
MR90 – 18	2.15	680	687	708	114	127
MS90 – 17	2.50	660	667	688	121	134
MT90 – 16	3.00	642	650	672	130	144
MT90 – 17	3.00	668	675	697		

Tyre size	Measuring rim width (Code)	Overall diameter (mm)			Section width (mm)	Maximum overall width (mm)
		D.min	D	D.max		
MU90 – 15M/C	3.50	634	642	665	142	158
MU90 – 16	3.50	659	667	690		
MV90 – 15M/C	3.50	643	651	675	150	172
MP85 – 18	2.15	654	660	679	108	120
MR85 – 16	2.15	617	623	643	114	127
MS85 – 18	2.50	675	682	702	121	134
MT85 – 18	3.00	681	688	709	130	144
MU85 – 16M/C	3.50	650	658	681	142	158
MV85 – 15M/C	3.50	627	635	658	150	172

ANNEX 6

METHOD OF MEASURING PNEUMATIC TYRES

1. The tyre is mounted on the measuring rim specified by the manufacturer pursuant to paragraph 4.1.12 of this Regulation and is inflated to a pressure specified by the manufacturer.

   As an alternative, inflation pressures could be specified as follows:

Tyre version		Speed category	Pressure	
			bar	kPa
Standard		F, G, J, K, L, M, N, P, Q, R, S	2,25	225
		T, U, H, V, W	2,80	280
Reinforced		F to P		
		Q, R, S, T, U, H, V	3,30	330
Motorcycle Derivatives ([1])	4PR	F to M	3,50	350
	6PR		4,00	400
	8PR		4,50	450
Moped	Standard	B	2,25	225
	Reinforced	B	2,80	280

([1]) From the date of entry into force of Supplement 8 to this Regulation no new approvals for these tyres should be issued pursuant to Regulation No 75. These tyre sizes are now included in Regulation No 54.

   For other tyre versions, inflate to the pressure specified by the tyre manufacturer.

2. The tyre fitted on its rim is conditioned to the ambient temperature of the laboratory for at least 24 hours.

3. The pressure is readjusted to the value specified in paragraph 1 above.

4. The overall width is measured by calliper at six equally-spaced points, account being taken of the thickness of the protective ribs or bands. The highest measurement so obtained is taken as the overall width.

5. The outer diameter is determined by measuring the maximum circumference and dividing the figure so obtained by π (3,1416).

ANNEX 7

PROCEDURE FOR LOAD/SPEED PERFORMANCE TESTS

1. PREPARATION OF TYRE

1.1. Mount a new tyre on the test rim specified by the manufacturer pursuant to paragraph 4.1.12 of this Regulation.

1.2. Inflate the tyre to the appropriate pressure given in the following table:

Testing inflation pressure (bars)

Tyre size		Speed Category	Inflation pressure	
			bar	kPa
Standard		F, G, J, K	2,50	250
		L, M, N, P	2,50	250
		Q, R, S	3,00	300
		T, U, H, V	3,50	350
Reinforced		F, G, J, K, L, M, N, P	3,30	330
		Q, R, S, T, U, H, V	3,90	390
Motorcycle Derivatives [1]	4PR	F, G, J, K, L, M	3,70	370
	6PR		4,50	450
	8PR		5,20	520
Moped	Standard	B	2,50	250
	Reinforced	B	3,00	300

[1] From the date of entry into force of Supplement 8 to this Regulation no new approvals for these tyres should be issued pursuant to Regulation No 75. These tyre sizes are now included in Regulation No 54.

For speeds above 240 km/h, the test pressure is 3,20 bar (320 kPa).

For other types of tyre, inflate to the pressure specified by the manufacturer.

1.3. The manufacturer may request, giving reasons, the use of test-inflation pressures differing from those given under paragraph 1.2 above. In such a case the tyre shall be inflated to that pressure.

1.4. Condition the tyre-and-wheel assembly at test room temperature for not less than 3 hours.

1.5. Readjust the tyre pressure to that specified in paragraph 1.2 or 1.3 above.

2. TEST PROCEDURE

2.1. Mount the tyre-and-wheel assembly on the test axle and press it against the outer face of a smooth test drum of 1,70 m ± 1 per cent or 2,0 m ± 1 per cent in diameter.

2.2. Apply to the test axle a load equal to 65 per cent of:

2.2.1. The maximum load rating equated to the Load Capacity Index for tyres with speed symbols up to H inclusive;

2.2.2. The maximum load rating associated with a maximum speed of 240 km/h for tyres with speed symbol 'V' (see paragraph 2.33.3 of this Regulation);

2.2.3. The maximum load rating associated with a maximum speed of 270 km/h for tyres with speed symbol 'W' (see paragraph 2.33.3);

2.2.4. The maximum load rating associated with the maximum speed specified by the tyre manufacturer for tyres suitable for speeds above 240 km/h (or 270 km/h as applicable) (see paragraph 6.2.1.1).

2.2.5. In case of moped tyres (speed category symbol B) the test load is 65 per cent on a 1,7 m diameter test drum and 67 per cent on a 2,0 m diameter test drum.

2.3. The tyre pressure must not be corrected throughout the test and the test load must be kept constant.

2.4. During the test the temperature in the test room must be maintained between 20 °C and 30 °C or at a higher temperature if the manufacturer so agrees.

2.5. The test shall be run without interruption, in accordance with the following:

2.5.1. Twenty minutes is allowed to build up from zero to the initial test speed;

2.5.2. Initial tests speed: 30 km/h less than the speed corresponding to the speed category symbol marked on the tyre (see paragraph 2.28.2 of this Regulation) if a 2,0 m diameter test drum is used, or 40 km/h less if a 1,7 m diameter test drum is used;

2.5.2.1. The maximum speed to be considered for the second test in case of tyres suitable for speeds above 240 km/h for tyres identified by means of letter code 'V' within the size designation (or 270 km/h for tyres identified by means of letter code 'Z' within the size designation) is the maximum speed specified by the tyre manufacturer (see paragraph 4.1.15).

2.5.3. Speed steps of 10 km/h;

2.5.4. Test duration at each speed step: 10 minutes;

2.5.5. Total duration of the test: 1 hour;

2.5.6. Maximum test speed: the maximum rated speed of the type of tyre if the test is performed with a 2,0 m diameter test drum; maximum rated speed for the type of tyre less 10 km/h if the test is performed with a 1,7 m diameter test drum.

2.5.7. In case of moped tyres (speed category symbol B), the test speed is 50 km/h, the build-up from 0 to 50 km/h is 10 minutes, the duration at the speed step is 30 minutes with a total duration of the test of 40 minutes.

2.6. However, in case a second test is performed to assess the top performances of tyres suitable for speed above 240 km/h, the procedure shall be the following:

2.6.1. Twenty minutes to build up from zero to the initial test speed;

2.6.2. Twenty minutes at the initial test speed;

2.6.3. Ten minutes to build up to the maximum test speed;

2.6.4. Five minutes at the maximum test speed.

3. EQUIVALENT TESTS

If a test other than that described above is used, its equivalence must be proved.

ANNEX 8

TYRE LOAD CAPACITIES AT VARIOUS SPEEDS

<table>
<tr><td rowspan="4">Speed (km/h)</td><td colspan="10">Variation in load carrying capacity (%)</td></tr>
<tr><td>Moped</td><td colspan="3">Rim Diameter Code up to 12 inclusive</td><td colspan="6">Rim Diameter Code 13 and above</td></tr>
<tr><td colspan="4">Speed Symbol</td><td colspan="6">Speed Symbol</td></tr>
<tr><td>B</td><td>J</td><td>K</td><td>L</td><td>J</td><td>K</td><td>L</td><td>M</td><td>N</td><td>P and above</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td colspan="6"></td></tr>
<tr><td>30</td><td>+ 30</td><td>+ 30</td><td colspan="2" rowspan="6">See column J</td><td>+ 30</td><td colspan="5" rowspan="6">See column J</td></tr>
<tr><td>50</td><td>0</td><td>+ 30</td><td>+ 30</td></tr>
<tr><td>60</td><td></td><td>+ 23</td><td>+ 23</td></tr>
<tr><td>70</td><td></td><td>+ 16</td><td>+ 16</td></tr>
<tr><td>80</td><td></td><td>+ 10</td><td>+ 10</td><td>+ 14</td></tr>
<tr><td>90</td><td></td><td>+ 5</td><td>+ 7,5</td><td>+ 5</td><td></td><td>+ 7,5</td><td>+ 7,5</td><td>+ 7,5</td><td>+ 12</td></tr>
<tr><td>100</td><td></td><td>0</td><td>0</td><td>+ 5</td><td>0</td><td>0</td><td>+ 5,0</td><td>+ 5</td><td>+ 5</td><td>+ 10</td></tr>
<tr><td>110</td><td></td><td>– 7</td><td>0</td><td>+ 2,5</td><td></td><td>0</td><td>+ 2,5</td><td>+ 2,5</td><td>+ 2,5</td><td>+ 8</td></tr>
<tr><td>120</td><td></td><td>– 15</td><td>– 6</td><td>0</td><td></td><td></td><td>0</td><td>0</td><td>0</td><td>+ 6</td></tr>
<tr><td>130</td><td></td><td>– 25</td><td>– 12</td><td>– 5</td><td></td><td></td><td></td><td>0</td><td>0</td><td>+ 4</td></tr>
<tr><td>140</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>0</td><td></td></tr>
</table>

ANNEX 9

TEST PROCEDURE FOR THE DYNAMIC GROWTH OF TYRES

1. SCOPE AND RANGE OF APPLICATION

1.1. This testing procedure is applicable for tyres mentioned in paragraphs 3.4.1 and 4.1 below.

1.2. It serves to determine the maximum tyre growth under the influence of centrifugal forces at the admissible maximum speed.

2. DESCRIPTION OF TEST PROCEDURE

2.1. The test axle and the rim must be controlled in order to assure a radial run-out less than ± 0,5 mm and a lateral run-out less than ± 0,5 mm, when measured at the bead seat of the wheel.

2.2. Contour outline device

Any device (projecting grid, camera, spot lights and others) which permits the external contour of the tyre cross-section to be outlined distinctly, or to establish an enveloping curve, normal to the tyre equator, at the point of the maximum deformation of the tread.

The device should reduce to a minimum any distortion and assure a constant (known) ratio (K) between the plotted contour and the actual tyre dimensions.

The device shall permit reference of the tyre contour to the wheel axis.

2.3. The deviation of the tyre tread peripheral speed, measured with a stroboscope, from the corresponding maximum speed of the tyre may not exceed ± 2 per cent.

2.4. If another test procedure is applied, it must be proved to be equivalent to the present procedure.

3. EXECUTION OF TEST

3.1. During the test, the temperature in the test room must be maintained at between 20 °C and 30 °C or at a higher temperature if the tyre manufacturer agrees.

3.2. The tyres to be tested shall have passed the load speed performance test according to Annex 7 to the Regulation, without showing any defect.

3.3. The tyre to be tested shall be fitted to a wheel having a rim conforming to the applicable standard.

3.4. The tyre inflation pressure (testing pressure) shall be adjusted to the values indicated in paragraph 3.4.1 below.

3.4.1. Road tyres in bias and bias/belted construction.

Speed category	Tyre construction	Testing pressure	
		bar	kPA
P/Q/R/S	standard	2,5	250
T and above	standard	2,9	290

3.5. The tyre/wheel assembly shall be stored at the temperature of the testing room for a period of at least 3 hours.

3.6. After this conditioning storage period the inflation pressure shall be readjusted to the value indicated in paragraph 3.4.

3.7. Mount the tyre and rim assembly on the test axle and ensure the assembly is freely rotating. The tyre can be rotated either by means of a drive motor acting on the tyre axis or by pressing it against a test drum.

3.8. Accelerate the assembly without interruption to reach within five minutes the maximum speed capability of the tyre.

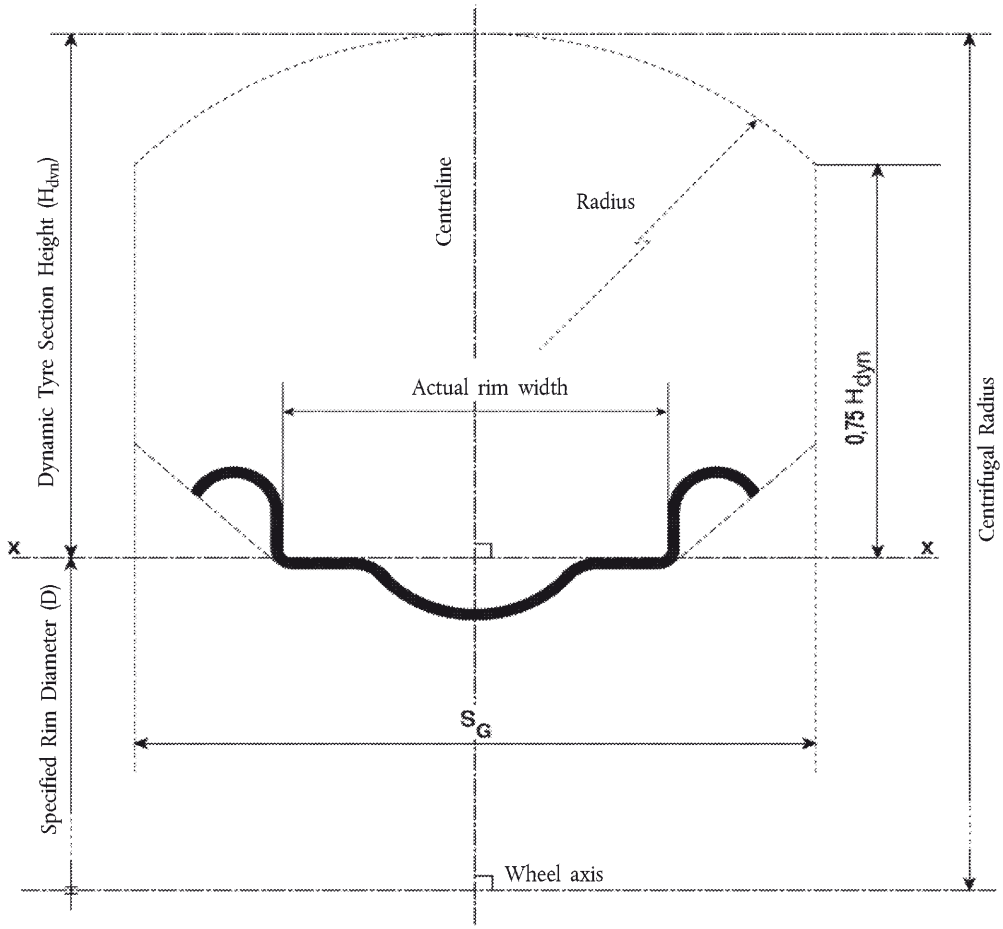
3.9. Position the contour outline device and ascertain that it is perpendicular to the rotation of the test tyre tread.

3.10. Check that the peripheral speed of the tread surface is within ± 2 per cent of the maximum speed capability for the tyre. Maintain the equipment at constant speed for at least five minutes and then portray the tyre cross-section in the area of maximum deformation, or check that the tyre does not exceed the enveloping curve.

4. EVALUATION

4.1. The limiting curve (enveloping curve) specified for the mounted tyre/wheel assembly shall be as in the example below):

Enveloping curve for centrifugal growth test



S_G = Maximum overall width in service (This changes 1 mm per 0.1 Rim width code change from the measuring rim)

H_{dyn} = Centrifugal radius – D/2.

In accordance with paragraphs 6.1.4 and 6.1.5 of the Regulation, the following limit values have been established for the enveloping curve:

Speed Category	H_{dyn} (mm)	
	Category of Use: Normal	Category of Use: Snow and special
P/Q/R/S	H × 1,10	H × 1,15
T/U/H	H × 1,13	H × 1,18
Over 210 km/h	H × 1,16	—

4.1.1. The main dimensions of the enveloping curve must be adjusted, if applicable, taking into account the constant ratio K (see paragraph 2.2 above).

4.2. The contour of the tyre portrayed at the maximum speed shall not exceed the enveloping curve, with reference to the tyre axes.

4.3. The tyre is not subjected to a further test.