

Transmitted by BIPAVER

PROPOSAL FOR THE INCLUSION OF JIS MARKED TYRES INTO ECE 109

Historical Data

JIS marked casings have been used for many years in Europe, particularly in the UK with excellent results.

The following table shows the returns from “E” marked tyres and from JIS tyres. As can be seen the JIS tyres perform just as well or better than the “E” marked ones.

Accepted Service Return Data for JIS Marked Casings

The following data is based on the most commonly used casings at one of the largest truck tyre retreaders in Europe.

The Japanese casings are manufactured to “JIS” D4230 and were purchased from Japan between 1st January 2000 and 31st December 2001 (2 years production) and used in general production of a large UK remoulder. Quality is established by testing each make and size of tyre after remoulding to the load speed rating required.

All other casing manufactures comply with E.C.E regulations and are “E” marked

Table 1

Manufacturer	Total % of first life casing sales	Failure % of casings used
Goodyear	5.16	0
Toyo (Japanese)	3.65	0
Dunlop (Japanese)	4.53	0
Ohtsu (Japanese)	2.24	0
Michelin	15.97	0.02
Bridgestone (Japanese)	19.99	0.06
Others	23.87	0.1
Dunlop	8.37	0.12
Bridgestone	5.14	0.19
Continental	9.73	0.2
Toyo	1.35	0.24

These figures are based on service returns that have exhibited failures due to construction failure e.g. Bead separations, Crown ply separations etc.

JIS Marking Type Approval System

In the JIS system each product is not specifically type approved but the process is. It has to be certified and approved by a government body, the Tyre Approval Authority. Every product has their performance tested by a test that is a drum test identical to that within Regulation 54 and ECE 109.

The system for approval is as follows:

JIS MARK – APPROVAL SYSTEM

Specific Inspection Body (SIB) – Approval Authority

An enterprise that has the ambition to obtain the certification to affix the JIS mark to its product, has the option to request an assessment conducted by assessors of the competent Minister or JIS Mark Certification Body or examination carried out by Specific Inspection body (SIB).

The SIB drafts a report as to the situation of the manufacturing (of processing) facilities, testing facilities, methods of testing and of quality control and technical manufacturing (of processing) conditions on the basis of the examination and submits the report to the applicant.

The competent Minister, after having received the application for JIS mark certification and the examination report from the applicant, conducts documentation review and decides whether he/she will issue JIS mark certificate.

Certification Method – Application for Approval

The certification system is based on factory assessment on the conformity of products to specific standards and their quality control based upon company standards. The item of assessment are the following.

(1) Manufacturing or Processing Facilities

Whether the applying factory has the specified facilities for manufacturing or processing

(2) Testing Facilities

Whether the applying factory has the specified testing facilities.

(3) Test Method

Whether testing is performed according to the corresponding JIS and specified measures.

(4) Quality Control Method

Quality control is performed by the following methods.

4.1 Whether company standards are concretely and systematically established satisfying the specification of the corresponding JIS and individual examination items on

4.1.1 quality, test, and storage of the product,

- 4.1.2 quality, test, and storage of materials for production,
- 4.1.3 control items and control methods of production process, quality characteristics and their testing methods, and working procedures,
- 4.1.4 control of production and testing facilities,
- 4.1.5 control of subcontracts, and
- 4.1.6 user complaints. Also. these company standards are appropriately reviewed and understood by the employees.

4.2 Control of final products

Whether testing and storage of products are appropriately performed based on the company standards.

4.3 Control of materials

Whether testing and storage of materials are appropriately performed based on the company standards.

4.4 Control of processing

4.4.1 Whether each process of production and testing are properly conducted in line with the company standards and controlled by necessary methods.

4.4.2 Whether appropriate action is taken for defects and irregularities.

4.4.3 Whether working conditions are properly maintained.

4.5 Control of facilities

Whether checking, testing, calibration, maintenance, etc., of the equipment are properly performed according to the company standards, and their accuracy and performance are appropriately maintained.

4.6 Control of subcontract work

Whether subcontract work is appropriately managed according to the company standards.

4.7 Handling of complaints

Whether complaints are properly handled according to the company standards, and necessary improvements are made.

4.8 Maintenance and utilization of the records

Whether the records on the above mentioned items are maintained for and used for promotion of quality control.

5. Other technical manufacturing conditions necessary for quality control

- 5-1) Whether standardization and quality control are systematically performed.

- 5-2) Whether the factory designates a qualified "quality control promoter".

Besides the assess items mentioned above, for smoothing the international trade and secure the quality assurance of mineral and industrial products, with recognition of the relevant Minister, items to be examined and criteria of the examination shall be prescribed as in the following items 1) and 2).

1. A person in a responsible position for promotion of industrial standardization and quality control who comes under item, 5-2, mentioned above, shall be appointed in the factory, or workshop.
2. The following shall be satisfied.
 - Manufacturing facilities/processing facilities, testing facilities, test methods, quality control methods and other technical manufacturing

conditions/technical processing conditions necessary to maintain the quality of products shall be satisfied the provisions prescribed in JIS Z 9902.

- Manufacturing or processing shall be carried out using the manufacturing/processing facilities prescribed in the corresponding JIS on the designated product or processing technique.
- Inspection shall be carried out using the inspection facilities and equipment prescribed in the corresponding JIS on the designated product or processing technique.
- Inspections shall be carried out in accordance with the methods of inspection prescribed in corresponding JIS on the designated product or processing technique.

Company standards shall be so arranged concretely and systematically that they comply with the provision of the corresponding JIS on the designated commodity or processing technique, and inspection and storage shall be properly carried out in accordance with these company standards.

Follow-up Inspection – Conformity of Production

Several measures have been designed to monitor the continuing compliance of the factory that received the authorisation to affix the JIS mark with the relevant legal criteria. The bottom line is that the competent Minister always maintains the right to order re-inspection when he deems such necessary.

The maximum penalty for illegal marking, such as the affixing of a JIS mark on a product without previous authorisation, is one year of penal servitude or a fine of Y1,000,000.

Systematic monitoring measures are:

1. Reports of the “monitoring system”
2. Purchase product testing
3. Follow-up inspection

SERVICE DESCRIPTION PERFORMANCE AND ENDURANCE TESTING

Service Description for truck tyres manufactured around the world are increasingly being standardised. When a new tyre size is introduced to the market a load index and speed symbol are used to indicate the load carrying capacity and rated road speed for application.

The load index and speed symbol replaces the previous system of ply rating. Ply Rating alone does not indicate the maximum speed rating, but does indicate load carrying capacity for that size tyre. This is specified in the JATMA handbook 199. Markets, which operate with a mixed marking system of index symbol and ply rating require the tyre manufacturer to rate the tyre to a speed equivalent to the road legal speed as a minimum.

Any tyre marked with the JIS mark and a ply rating will have been certified to a minimum set down in JIS D4230.

Ply Rating	8 or less	10	12	14	16 or more
Speed Symbol	M	L	L	K	J

It is therefore simple to translate a JIS marked casing with a ply rating as its service description into load index and speed symbol. See example below.

Conversion of Ply Rating to Load Index

1. Convert Ply Rating to Load Range.
2. Find Maximum Capacity Load (Kg) for Tyre Size.
3. Use Load Capacity versus Load Index to identify Load Index.

Example:

Tyre Size: 10R22.5

Ply Rating: 14

- 14 Ply Rating is equivalent to a Load Range of “G”
- Load Range “G” for 10R22.5 equates to 2575Kg Single 2300Kg Dual
- These Capacities translate to 141/137 Load Index
- JIS D 4230 tests 14 P.R at K speed equivalent on drum

Therefore Conversion = 141 / 137 K

Comparison of Endurance Testing for Commercial Vehicle Tyres

	Drum Ø 1.7m +/- 1%	Ambient Temp 20°C to 30°C	Condition- ng Temp 20°C to 30°C	Speed Symbol and Speed MPH & (Km/h)						Test Period Durations and Load %		
				F 50 (32)	G 56 (40)	J 62 (48)	K 68 (56)	L 75 (64)	M 81 (72)	Test stage 1 7 hrs @ . 66%	Test stage 2 16 hrs @ 84%	Test stage 3 24 hrs @ 101%
ECE reg 54	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
JIS D4230	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓