



**NATIONAL CARAVAN
COUNCIL LIMITED**

Code of Practice 502

**Minimum Specification for
Wheel & Tyre configurations**

for

**Caravan Holiday Homes
&
Residential Park Homes**

Issue 2 – 1 March 2004

Foreword

This code of practice has been drawn up by the National Caravan Council to ensure verification testing is adopted by suppliers of wheel & tyre configurations for caravan holiday-homes and residential park homes.

The National Caravan Council's Technical Committee, with the co-operation of Wheel & Tyre suppliers, has produced this Code of Practice.

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The National Caravan Council is the representative trade association for the U.K. Caravan Industry and was founded in 1939. Membership encompasses all sides of the industry, manufacturers, dealers, park owners and specialist suppliers of products and services.

The National Caravan Council founded and is now a key member of the European Caravan Federation, which promotes and strengthens the interests and influence of the industry within the EC.

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1 SCOPE

This Code of Practice specifies the minimum requirements for Wheel & Tyre configurations, including all their component parts for supply into the caravan holiday homes and residential park home industry.

2 REFERENCES

This Code of Practice incorporates references to other publications. These references are cited in the text and the publications are listed on the inside of the back cover.

3 BANDING OF WEIGHTS

It is the responsibility of the caravan holiday-home/park home manufacturer to advise the chassis manufacturer the maximum weight of the home. To help rationalize this process an associated code (CoP501) defines specific weight bands for chassis. The bands are as follows: -

Band A	0-1600 kg	Band D	0-3400 kg
Band B	0-2200 kg	Band E	0-4200 kg
Band C	0-2600 kg	Band F	0-5500 kg

4 APPROVAL CERTIFICATION

With effect from 1st November 1998, it shall be an annual requirement (i.e. within 12 months of the last test) that suppliers of tyres and their component parts to the caravan holiday home/park home industry obtain approval certification from the National Caravan Council for each configuration.

Before registering a configuration the National Caravan Council must be in possession of a satisfactory report from an approved test house. This report shall show that the wheel and tyre configuration has successfully passed the load/speed drum test as defined in clause 9 & Annex A and that the wheel and tyre bear the markings specified in clause 7.

5 REGISTER OF APPROVED CONFIGURATIONS

The National Caravan Council will maintain a register of certified wheel & tyre configurations for which they hold satisfactory test house reports. The list will be available via the NCC web site (www.thecaravan.net), and will be updated when new approvals are received.

6 COMPONENT PARTS

Suppliers should, as a matter of good practice, ensure that they have unambiguous written statements from the original component manufacturers (tyre, rim, bearing and tube) endorsing the loading capacities declared. For the purpose of the endorsement from the component manufacturer, the test parameters in Annex A should be used to define the use.

7 WHEEL & TYRE MARKINGS

7.1 TYRES

These minimum markings must be permanently moulded into one sidewall and be legible.

- Tyre size designation including the type of structure symbol
- Brand or manufacturer's name
- Load carrying capacity
- Maximum speed rating *
- Maximum inflation pressure (bar/psi). (if pneumatic)

This minimum information should be visible from the valve side of the Wheel and Tyre assembly

*Note – The speed rating is as stated on the sidewall. This rating does not have to be as high as the extreme speed to which the tyre will be subjected in the test. (See Annex A).

7.2 WHEELS

The following information shall be permanently visible on the outer face of the wheel:-

- Letter signifying weight band (see clause 3)
- Maximum inflation pressure (bar/psi) of the tyre fitted to the assembly (if pneumatic)
- Operating pressure (bar/psi)

8 TYRE PRESSURES

It is essential that tyres are correctly inflated as low tyre pressures can cause dangerous tyre failures. It is therefore important that tyre pressures are appropriate for the market and that all parties within the distribution chain (caravan manufacturer, haulier, distributor, park operator) are capable of inflating the tyre to the correct pressure. The maximum permitted pressure for approval purposes under this code is 6.895 bar (100 psi).

9 LOAD/SPEED DRUM TEST

An independent test house, in accordance with the test laid down in Annex A, must test all wheel & tyre configurations. The supplier and test house should use a similar approval application form to that as detailed in Annex B.

NOTE:

Independent Test Authority - The excessive loads that require to be applied during the test restricts the number of available test houses.

The National Caravan Council has identified and used the following test house for exploratory testing: -

Malaysian Rubber Producers Research Association (MRPRA)
Brickendonberry
Hertford
SG13 8NL

10 UNANNOUNCED SPOT CHECK

The National Caravan Council reserves the right to conduct random tests from tyre assemblies as supplied to the industry. The supplier's configuration may be withdrawn from the register and all caravan holiday-home/park home manufacturers notified if the tyre assemblies, as selected/tested, fail to meet the requirements and/or test parameters contained in this Code of Practice.

ANNEX A

Procedure for Load/Speed Tests

1. Preparing the tyre assembly:

- 1.1 The tyre shall be inflated to the pressure indicated by the manufacturer or supplier on the Drum Test Application Form.
- 1.2 Condition the tyre assembly at room temperature for not less than three hours.
- 1.3 Readjust the tyre pressure to that specified in paragraph 1.1.

2. Test Procedure

- 2.1 Mount the tyre assembly on a test axle (35mm stub axle manufactured from EN8 (BS970 Pt1) and press it against the outer face of a smooth surfaced power driven test drum either 1.70m \pm 1 percent or 2.0m \pm 1 percent diameter.

- 2.2 Apply to the test axle a load equal to the appropriate Load Band

Band A	=	800 Kg	Band D	=	1700 Kg
Band B	=	1100 Kg	Band E	=	2100 Kg
Band C	=	1300 Kg	Band F	=	2750 Kg

- 2.3 Throughout the test the tyre pressure must not be corrected and the test load kept constant.
- 2.4 During the uninterrupted test, the temperature in the test room must be maintained at between 20° and 30°C.
- 2.5 The test program shall be:

5 minutes to 10 mph	}	at 100% load
5 minutes at 10 mph		
5 minutes to 25 mph		
5 minutes at 25 mph		

3. Result

The tyre assembly will have passed if it completes the test schedule as indicated and shows no signs of external failure and has the correct wheel & tyre markings present and legible.

In the case of failure being recorded during tests, two further samples of the same specification shall be tested. If either or both of these second two samples fail, then a final submission of two samples shall be tested. If either or both of the final two samples fail, then the application for approval shall be rejected.

4. Equivalent Test Methods:

If a method other than that described in paragraph 2 is used, its equivalence must be demonstrated.

ANNEX B

DRUM TEST APPLICATION FORM

Please complete Section A of this form and submit it together with the corresponding wheel & tyre configuration to the independent test house.

SECTION A:

Company Name/Address: _____

Contact Name: _____ Telephone No: _____

Company Reference No (if applicable) _____

APPROVAL TESTING OR RESEARCH AND DEVELOPMENT

Tyre Size: _____ Type: _____ Brand Name: _____

Original Manufacturer: _____ Country of Origin: _____

Tube Details: _____

VALVE CAP: SEALING TYPE NON-SEALING TYPE

Rim Details: _____

Hub Tube Thickness _____mm. Rim Thickness _____mm. No of Bearings _____

TYRE MARKINGS PERMANENTLY MOULDED INTO ONE SIDEWALL

-Tyre size designation including the type of structure symbol _____

-Brand or manufacturer's name _____

-Load carrying capacity _____Kgs. Maximum speed rating _____ Kph

-Maximum inflation pressure (if pneumatic) _____ bar/psi (this must not exceed 6.895 bar/100 psi)

WHEEL MARKINGS

- Letter signifying weight band _____(A,B,C,D,E or F)

- Maximum inflation pressure (if pneumatic) _____ bar/psi (this must not exceed 6.895 bar/100 psi)

- Operating pressure (bar/psi)

ADDITIONAL INFORMATION/SPECIAL INSTRUCTIONS: _____

PLEASE TEST THE ABOVE TO:

LOAD BAND: _____ LOAD (Kg) _____ PRESSURE (**BAR/PSI**) _____

Signed: _____ Date: _____

SECTION B

THIS SECTION TO BE COMPLETED BY THE TESTING LABORATORY AND SECTION A AND B SUBMITTED TO THE NATIONAL CARAVAN COUNCIL, CATHERINE HOUSE, VICTORIA ROAD, ALDERSHOT, HAMPSHIRE, GU11 1SS

TEST SCHEDULE:

	TIME (minutes)	LOAD (%)	SPEED (mph)
STAGE 1	5	100	To 10
STAGE 2	5	100	At 10
STAGE 3	5	100	To 25
STAGE 4	5	100	At 25

	TEST 1	TEST 2	TEST 3	TEST 4	TEST 5
BAY TEMPERATURE					
AT START OF TEST (°C)					
AT END OF TEST (°C)					

CIRCUMFERENCE					
BEFORE TEST (mm)					
AFTER TEST (mm)					

INFLATION PRESSURE (bar/psi)					
AT START OF TEST					
AT END OF TEST					

SECTION WIDTH					
BEFORE TEST (mm)					
AFTER TEST (mm)					

TEMPERATURE IN					
FRONT SHOULDER (°C)					

Wheel & Tyre Markings (X or)		
Verification that the wheel & tyre markings are present and legible as detailed in Section A of this form		

RESULT:

- Tyre assembly **COMPLETED** test schedule as indicated and showed no signs of external failure and the wheel & tyre markings are present and legible.
- Tyre assembly completed test schedule as indicated and showed no signs of external failure, but the wheel & tyre markings were not correct/legible.
- Tyre assembly completed test schedule and the wheel & tyre markings are present and legible, but failed on visual examination.
- FAILED** after _____ minutes in Stage _____

COMMENTS/EXAMINATION DETAILS:(Tyre/Tube/Rim/Bearing)

Signed: _____ Date: _____

Publications referred to

- BS 970 Specification for wrought steels for mechanical and allied engineering purposes.
- Part 1. General inspection and testing procedures and specific requirements for carbon, carbon manganese, alloy and stainless steels.
- CoP 501 Specification for Undergear of Caravan Holiday Homes and Residential Park Homes