



# Caravan Tyres

Tyres are the only parts of the caravan which are in contact with the road. Safety in acceleration, braking, steering and cornering all depend on a relatively small area of road contact. It is therefore of paramount importance that tyres should be maintained in good condition at all times and that when the time comes to change them the correct replacements are fitted.

The original tyres for a caravan are determined by joint consultation between the caravan and tyre manufacturers and take into account all aspects of operation. It is recommended that changes in tyre size or type should not be undertaken without seeking advice from the caravan or tyre manufacturers, as the effect on caravan handling, safety and clearances must be taken into account.

In some other European countries it is illegal to use replacements which differ in certain respects (e.g. size, load, and speed rating) from the tyre fitted originally by the vehicle manufacturer.



And Your Safety

# Caravan Tyres and Your Safety

## Don't Forget Your Caravan/ Trailer Tent Tyres

Safe driving when towing a caravan or trailer tent is very important and one major factor that is frequently overlooked, is the tyres. Look after your tyres properly and you will improve the safety and behaviour of your car and caravan or trailer tent. This leaflet has been produced by the UK tyre industry to help you to do this.

## Check the Pressures

Whatever tyres are fitted to the towing car and caravan or trailer tent, it is essential to the safety and stability of the combination that all tyres are correctly inflated for the applied loading. This is a golden rule of motoring and of caravanning in particular. Under or over inflated tyres can not only adversely affect the handling, but can also lead to dangerous tyre failure.

Pressures should be checked and adjusted prior to any journey when the tyres are cold – not during or after a run when they will be higher. Never reduce pressures when the tyres are warm, as they could be too low when they cool down. After pressure checking ensure the valve is not leaking and the valve cap is fitted.

The correct inflation pressure for your car tyres will be found in the car handbook and in some cases on a placard displayed on the vehicle. In the absence of special towing recommendations, in order to improve handling and accommodate the additional load on the hitch, the rear tyres should be set at the "fully laden" pressure. Where full load pressure does not differ from that for normal driving the rear tyre pressure should be increased by 4 to 7 psi (0.3 to 0.5 bar).

Inflation pressures appropriate to the actual load imposed on the caravan/trailer tent tyres will be found in the load and pressure tables further on.

Tyres not inflated to the correct pressure wear out more quickly. So in the long run, keeping them at the right pressure could save you money.

Special conditions apply to Self Supporting Run Flat Tyres (SST) where they are fitted to the towing vehicle. Guidelines for tyre pressures and conditions of operating in a run flat condition are given in the vehicle manufacturer's handbook.

## Fit the Right Tyres

As with all road vehicles, it is essential that tyres of the correct specification be fitted. It is always advisable to have the same construction of tyres on all wheels. Only tyres of equal size and service description (Load Index / Speed

Symbol) and identical wheels should be fitted across an axle and carried as a spare. Tyre pressures across an axle should be equal.

Older caravans may be equipped with cross-ply tyres that are no longer available and when a change is required radial ply tyres will have to be fitted. If a caravan is converted from cross-ply to tubeless radial tyres, the latter must only be fitted to safety type rims, i.e. those with a hump or flat ledge on the outer bead seat. Many older caravans have non-safety rims and the previous recommendation has been to fit tubes with radial ply tyres. BEFORE DOING SO THE TYRE MANUFACTURER MUST BE CONSULTED, as not all radial ply tyres are suitable for use with tubes.

If travelling abroad during the winter season, some countries stipulate appropriate winter tyres are fitted to the vehicle. Even if the country being visited does not make such a legal requirement it is always a good practice to fit tyres that are appropriate for the road / weather conditions – consult the tyre manufacturer.

Caravans in the main are fitted with car type tyres and in former times it had been a practice to allow a bonus load to be applied to the maximum permitted tyre load, but subject to a significant speed reduction. Because caravans have become better equipped and hence heavier and also maximum permitted speeds have increased both in Great Britain and abroad, caravan manufacturers are generally fitting larger capacity tyres and eliminate the unpopular and often abused practice of utilising bonus loads.

It is essential the combined tyre load capacity is sufficient for the maximum weight (MTPLM) of the caravan, but as an extra safeguard it is strongly recommended the MTPLM does not exceed 90% of the tyre's load capacity.

## Watch Your Speed

In Great Britain, cars, car derived vans and 4 x 4 vehicles towing caravans/trailer tents are restricted to a maximum of 60 mph (96 km/h) on dual carriageways and motorways. The limit is 50 mph (80 km/h) on other roads unless indicated otherwise.

Other countries may have different speed limits or regulations and drivers should ensure compliance with these when towing abroad.

## General Recommendations

For general recommendations about towing caravans users are recommended to obtain a copy of 'The Caravan Towing Guide' from the National Caravan Council (telephone 01252 318 251).

## Spare Tyre/Wheel

It is strongly recommended that a compatible spare wheel/tyre assembly be carried for the caravan. As caravan tyres and wheels are rarely the same as those on the towing vehicle, you must not attempt to use the spare tyre/wheel assembly from the towing vehicle on the caravan if you should have a puncture. Ensure the spare wheel is the correct specification, i.e. strength and dimensions.

## Minimum Tread Depth

To ensure compliance with regulations throughout Europe a minimum tread depth of 1.6mm **across the full tread width** is strongly recommended. However in the interests of safety it is advisable to replace tyres well before they reach this legal limit.

## Puncture Sealants

The use of a pre-puncture sealant is not recommended; however it is recognised that a post-puncture sealant may well serve a useful function if used to move a stranded vehicle to a safe location. British Standard (BSAU 159) does not recognise the application of a puncture sealant as a permanent repair method. Any tyre that has sustained a puncture and run even for a limited distance in a deflating or deflated condition, will have suffered internal damage.

## Noseweight

The Caravan Towing Guide recommends that the noseweight should be varied to find the optimum for towing dependent upon the actual laden weight of the caravan/trailer tent. Experience and research has shown that the noseweight should be approximately 7% of the actual laden weight for optimum stability. However, this may be restricted by the towing vehicle manufacturer's limit and the caravan's hitch limit.

If there is insufficient weight on the hitch the caravan/trailer tent may yaw (snake) leading to possible instability.

## Tyre Care

Check your tyres regularly but particularly when the caravan has not been used for some time. Vehicles such as caravans or trailer tents, which are not used normally during winter, should be thoroughly inspected prior to re-use during the summer months. Look particularly for any sign of age deterioration in the tyres such as sidewall cracking and carcass deformation. Tyres on a stationary vehicle, particularly if parked in coastal areas, always age more quickly than those in regular and frequent use. If your caravan/trailer tent is going to stand for any length of time, it is wise to cover the tyres and to shield them from direct sunlight and if possible

to jack the weight off the tyres. If in doubt about the condition of your tyres, have them checked immediately by a tyre specialist.

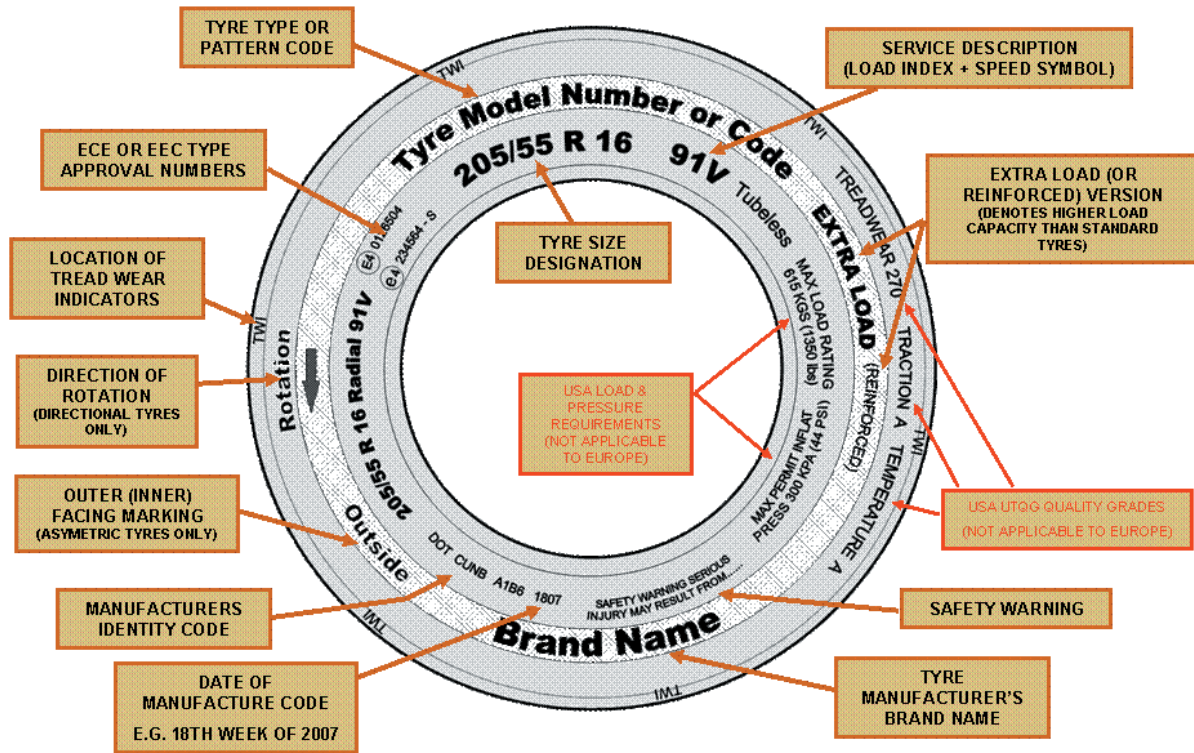
There is no known technical data that supports a specific tyre age for removal from service. However, in the interests of safety a number of vehicle and tyre manufacturers recommend that tyres (including spare tyres) that were manufactured more than a certain number of years previously be replaced with new tyres, even when they appear to be usable from their external appearance and the tread may not have reached the minimum wear out depth. It is recommended that any such instruction be followed. Consumers should note that most tyres would have to be removed for tread wear-out or other causes before any prescribed age is reached. A stated removal period in no way reduces the consumer's responsibility to replace tyres as needed.

## Do Not Overload

It is dangerous to overload tyres at any time. The police may take action against drivers when their caravan is excessively loaded or has a badly distributed load. A poorly distributed load can cause overloading of one or more wheels even when the maximum permissible total load is not exceeded. It is important to spread the load evenly around the vehicle and as low as possible, thus the stability of the car and caravan combination will not be impaired. Failure to adhere to this rule will invite tyre problems and possible tyre failure. It is advisable to ensure the total caravan operating weight is below the specified maximum limit and a margin of 10% will partly compensate for some unequal load distribution. To ensure a safely loaded vehicle make use of Public Weighbridges



**Tyre Sidewall Markings** Note: The loads and pressures moulded on the sidewalls of many tyres are a North American requirement and do not apply in the UK and Europe. **ITEMS IN RED PRINT ARE NOT OBLIGATORY IN UK & EUROPE**



**Explanation of Tyre Size Designations**

RADIAL CAR TYRE EXAMPLE					
(S) Nominal Section Width (mm)	Nominal Aspect Ratio (H/S)	Tyre Construction	Nominal Rim Diameter Code*	Service Description	
				Load Index (LI)**	Speed Symbol
205	/55	R	16	91	V

RADIAL COMMERCIAL TYRE EXAMPLE					
(S) Nominal Section Width (mm)	Nominal Aspect Ratio (H/S)	Tyre Construction	Nominal Rim Diameter Code*	Service Description	
				Load Index (LI)**	Speed Symbol
195	/70	R	15C	104/102	R

**Note** \* The 'C' after the rim diameter code denotes light commercial vehicle tyres. \*\* Where two load indices are shown, the first applies to tyres in single formation. The second index applies to tyres fitted in twin formation which do not normally apply to caravans.

**Tyre Speed Symbols**

Speed Symbol	Reference Speed		Speed Symbol	Reference Speed	
	mph	Km/h		mph	Km/h
J	62	100	S	113	180
K	68	110	T	118	190
L	75	120	U	125	200
M	81	130	H	130	210
N	87	140	V	150	240
P	93	150	W	169	270
Q	100	160	Y	186	300
R	106	170	ZR	over150	over240

**Tyre Load Index Table – Maximum Load Per Single Wheel**

Load index	Load kg	Load index	Load kg	Load index	Load kg	Load index	Load kg	Load index	Load kg
50	190	65	290	80	450	95	690	110	1060
51	195	66	300	81	462	96	710	111	1090
52	200	67	307	82	475	97	730	112	1120
53	206	68	315	83	487	98	750	113	1150
54	212	69	325	84	500	99	775	114	1180
55	218	70	335	85	515	100	800	115	1215
56	224	71	345	86	530	101	825	116	1250
57	230	72	355	87	545	102	850	117	1285
58	236	73	365	88	560	103	875	118	1320
59	243	74	375	89	580	104	900	119	1360
60	250	75	387	90	600	105	925	120	1400
61	257	76	400	91	615	106	950	121	1450
62	265	77	412	92	630	107	975	122	1500
63	272	78	425	93	650	108	1000	123	1550
64	280	79	437	94	670	109	1030	124	1600

### Axle Load and Inflation Pressure Tables

The extraordinary demands placed on tyres fitted to caravans mean that, in the interests of safety, it is prudent to avoid continuous operation at or approaching the tyres' maximum load capacity. **Accordingly, the UK tyre industry strongly recommends that the maximum vehicle load**

**should not exceed 90% of the combined tyre load capacity as indicated by load index.** The following tables reflect this recommendation by highlighting in red the axle loads in excess of 90% and up to the maximum permitted for the tyres. (The loads shown assume two tyres per axle).

STANDARD TYRES					
TYRE SIZE	LOAD INDEX	MAX RECOMMENDED AXLE LOAD (KG)	COLD INFLATION PRESSURE		MAX PERMISSIBLE AXLE LOAD (KG)
			BAR	PSI	
145 R 13	74	675	2.1	32	750
155 R 13	78	765	2.1	32	850
165 R 13	82	855	2.2	33	950
145/80 R 13	75	697	2.3	35	774
155/80 R 13	79	787	2.3	35	874
165/80 R 13	83	877	2.3	35	974
175/80 R 13	86	954	2.3	35	1060
165/70 R 13	79	787	2.4	36	874
185/70 R 13	86	954	2.4	36	1060
195/70 R 14	91	1107	2.4	36	1230
175/65 R 14	82	855	2.4	36	950

REINFORCED TYRES					
TYRE SIZE	LOAD INDEX	MAX RECOMMENDED AXLE LOAD (KG)	COLD INFLATION PRESSURE		MAX PERMISSIBLE AXLE LOAD (KG)
			BAR	PSI	
155 R 13	82	855	2.7	39	950
165 R 13	86	954	2.9	42	1060
155/80 R 13	83	877	2.8	41	974
165/80 R 13	87	981	2.8	41	1090
195/70 R 14	95	1242	2.9	42	1380
195/70 R 14	96	1278	2.9	42	1420
175/65 R 14	86	954	2.9	42	1060
195/65 R 14	93	1170	2.9	42	1300

LIGHT COMMERCIAL TYRES					
TYRE SIZE	LOAD INDEX	MAX RECOMMENDED AXLE LOAD (KG)	COLD INFLATION PRESSURE		MAX PERMISSIBLE AXLE LOAD (KG)
			BAR	PSI	
165 R 13 C	94	1206	4.5	65	1340
175 R 13 C	97	1314	4.5	65	1460
165 R 14 C	97	1314	4.5	65	1460
175 R 14 C	99	1395	4.5	65	1550
185 R 14 C	102	1530	4.5	65	1700
195 R 14 C	106	1710	4.5	65	1900
185/75 R 14 C	102	1530	4.75	69	1700
185/70 R 14 C	98	1350	3.75	54	1500
185/65 R 14 C	93	1170	3.75	54	1300
195/65 R 14 C	99	1395	3.75	54	1550
195/70 R 15 C	100	1440	3.75	54	1600
195/70 R 15 C	104	1620	4.5	65	1800
225/70 R 15 C	109	1854	3.75	54	2060
225/70 R 15 C	112	2016	4.5	65	2240
205/65 R 15 C	102	1530	3.75	54	1700
195/75 R 16 C	107	1755	4.75	69	1950
205/75 R 16 C	110	1908	4.75	69	2120
215/75 R 16 C	113	2070	4.75	69	2300
195/65 R 16 C	104	1620	4.75	69	1800
205/65 R 16 C	107	1755	4.75	69	1950
215/65 R 16 C	109	1854	4.75	69	2060
225/65 R 16 C	112	2016	4.75	69	2240

## Glossary of Terms

### Tyre Inflation Pressure

Is the lowest safe tyre pressure for the load and speed indicated.

### Bonus Load

Is the additional load permissible when running at a reduced maximum speed of 100 km/h where the gross weight (MTPLM) does not exceed 3.5 tons with a tyre speed symbol of at least L.

### Axle Load

Is the maximum load that can be carried at the stated inflation pressure. These tables do not apply to tyres fitted in dual or twin formation.

### Maximum Running Speed

Is the permissible legal road speed for a vehicle combination.

### Service Description

Is the combination of the tyre's Load Index (LI) and Speed Symbol (SS) moulded into the sidewall of the tyre in the vicinity of the size marking.

### Load Index

Is a numerical code associated with the maximum load a tyre can carry at the speed indicated by the Speed Symbol. (see table on page 4)

### Speed Symbol

Indicates the maximum speed at which the tyre can carry a load corresponding to its Load Index. (See table on page 4)

### Safety Type Rim

A wheel rim incorporating a hump or flat ledge on the outer bead seat to prevent possible tyre dislodgement.

### Pre-Puncture Sealant

A solution applied to the inside of the tyre at the time of fitting to prevent air loss in the advent of a puncture. (Not recommended by the tyre industry).

### Post-Puncture Sealant

A liquid applied via the tyre valve following a puncture, which seals the penetration hole. (The tyre industry recommends these as a 'Get you home' measure only).

### MTPLM

The maximum technically permitted laden mass of the caravan/trailer tent. (Formally referred to as the maximum gross or authorised weight).

### MIRO

The mass in running order of the caravan/trailer tent when equipped to the manufacturer's standard specification. (Formally referred to as the unladen or ex works weight).

### User Payload

The difference between the MTPLM and the MIRO.

## Remember the 'Golden Rules'

For safe towing of caravans and trailer tents:

- **Fit the correct tyres**
- **Tyres must be in good condition**
- **Tyre pressures must be correctly maintained using an accurate tyre pressure gauge**
- **Do not overload**
- **Check your tyres regularly for any signs of damage and remove from the tread any potential penetrations such as trapped stones**
- **Drive the combination at reasonable ('comfortable') speeds – within the speed limits**
- **Rapid manoeuvres must be avoided, e.g. sudden overtaking or lane changing. Good driving practice, with or without a caravan/trailer tent, includes intelligent anticipation of such moves.**
- **Respect the car and caravan/trailer tent manufacturer's recommendations at all times.**



Look after your tyres and they'll look after you **TyreSafe**