Wheels and Rims

It is essential that the wheel size and design/type is an approved and suitable fitment for the tyre and motorcycle concerned.

Tyres must not be used on damaged or distorted wheels since this could result in tyre damage, deflation and possible loss of control of your motorcycle.

Car and motorcycle rims of the same nominal diameter code (e.g. 17) have different dimensions and therefore car and motorcycle rims and tyres must not be inter-changed.

Repaired Tyres

It is dangerous to re-inflate a tyre which has been run flat or seriously under-inflated and such tyres should be removed for thorough examination by a tyre specialist.

Repairs to motorcycle tyres and tubes should be carried out by a tyre specialist and in accordance with the current British Standard AU 159 or tyre manufacturer's recommendations.

On no account should a tube be considered as a puncture repair remedy.

Permanent repairs can only be carried out following removal of the tyre from the wheel to allow a thorough inspection internally as well as externally to ensure there is no hidden damage which could result in failure.

In order to avoid such a hazard, neither externally applied plug type repairs nor liquid sealants are recommended and tyre manufacturers cannot be responsible for problems resulting from their use.

Removal and Fitting of Tyres

These operations should only be entrusted to a trained tyre specialist who has the necessary equipment and expertise. Inexpert fitting can result in injury and damage to tyres and wheels.

Direction arrows, where shown on the sidewall, indicate the direction of rotation of front and rear tyres and must not be ignored.

If you are in doubt about the correct tyre for your motorcycle, consult a tyre specialist.

Motorcycle Tyres

Safe tyres save lives

TyreSafe

Motorcycle Tyres and Your Safety

General Advice

Tyres are the only parts of the motorcycle 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 suitable replacements are fitted.

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

The tyre industry has long recognised the consumer's role in the regular care and maintenance of their tyres. The point at which a tyre is replaced is a decision for which the owner of the tyre is responsible.

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

Choosing the Right Tyre

Today's motorcycles vary in design and specification including scooter and all-terrain to suit a variety of pursuits including; race, street, sport, touring, off-road and leisure.

Tyres should be chosen with both the motorcycle and the application in mind.

For guidance, or if in doubt, you should:

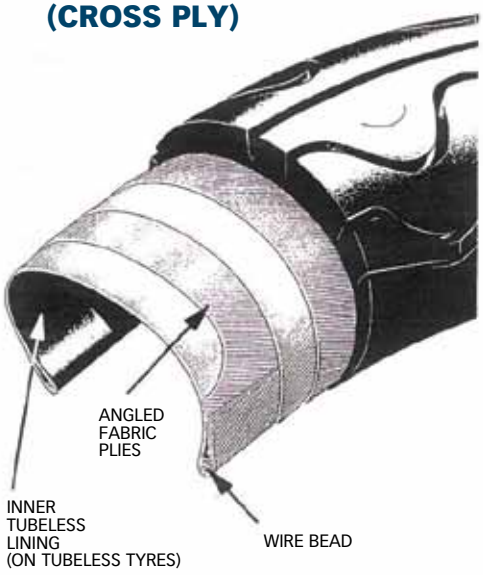
a) Refer to the owner's manual
b) Consult a tyre specialist
c) Use the tyre manufacturer's fitment guide book

Types of Tyres

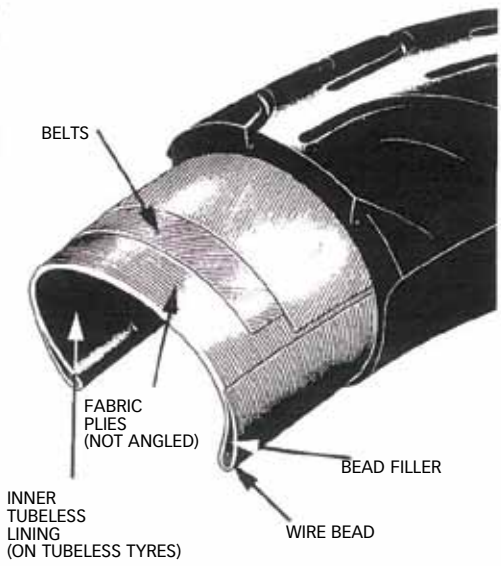
There are three basic tyre construction types:

- Diagonal (cross) ply
- Radial ply
- Bias belted

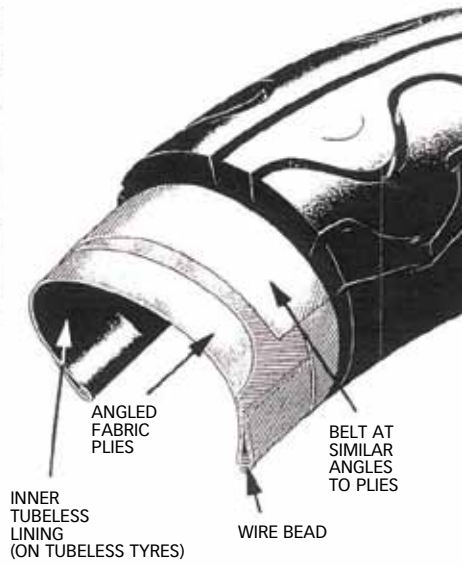
DIAGONAL (CROSS PLY)



RADIAL PLY



BIAS-BELTED



Depending on the wheel type, these may be tubeless (no tube required); or tube type (requiring an inner tube).

All three construction types can be manufactured in differing tread profiles and patterns which may also be available for front and rear fitment.

It is recommended that tyres be fitted in matched pairs for optimum performance (in certain European countries it is illegal to mix brands on the same bike. Local tyre regulations should be checked when taking your bike abroad).

Special tyres are available for sporting events, some of which are unsuitable for road use and are marked accordingly (normally NHS – Not for Highway Service).

Mixing of Tyres

Front fitment	Rear Option
X-ply	X-ply
	Bias belt
	Radial
Bias belt	Bias belt
	Radial
Radial	Radial

It is illegal and could be dangerous to mix tyres of different construction on motorcycles in certain ways; for permitted fitments refer to table (left).

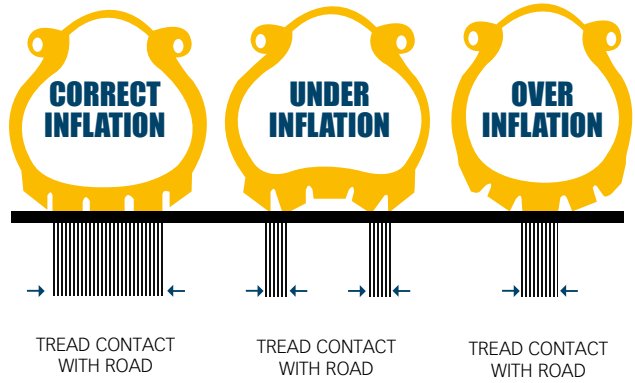
If in doubt a tyre specialist should be consulted, but to avoid any misunderstanding it is recommended that both tyres on a motorcycle, and all tyres on a combination, should be of the same construction and from the same tyre manufacturer.

Where sidecars are fitted and the sidecar axle aligns with either of the motorcycle axles, the sidecar tyre must be of the same construction as the tyre with which it aligns.

Keep the Pressure Correct

The correct tyre inflation pressure is vitally important for safe handling of the motorcycle. The recommended tyre pressures for original equipment tyres will be stated in the motorcycle owner's manual. For fitment of aftermarket alternative tyres, advice should be sought from the tyre specialist or tyre manufacturer. Specific advice from the tyre manufacturer is recommended for tyres fitted to classic and vintage motorcycles pre 1960 where pressures quoted in original handbook may be inappropriate. An indication of maximum load at a given pressure is marked on all tyre sidewalls, this should not be used as a recommended pressure. Pressures must be adjusted appropriately for solo and for pillion and pannier loads. It is dangerous to re-inflate a tyre which has been run flat or seriously under inflated. Such tyres should be removed for inspection by a tyre specialist.

Prolonged under-inflation causes excessive flexing, deterioration of the casing and rapid wear of the tread shoulders/edges. Your motorcycle may also consume more fuel.



Over-inflation may result in an uncomfortable ride, a reduced area of contact with the road, accelerated wear on the tread centre and makes the tyre more susceptible to impact damage.

Inflation pressures should be checked once a week when the tyre is cold, since there is an increase in pressure when the tyre has warmed up after being run. A reliable and accurate pressure gauge should be used.

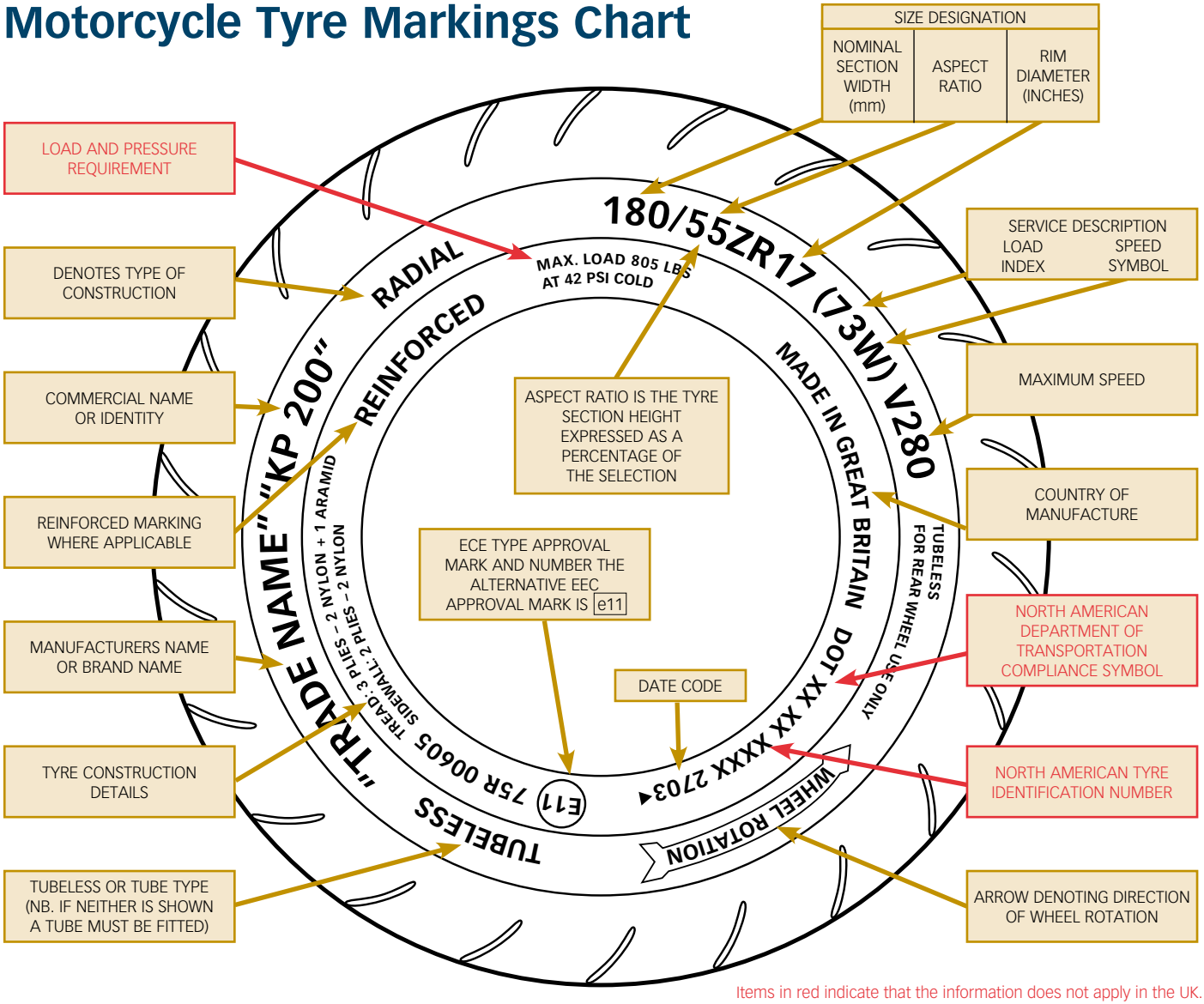
Running-in Tyres

The running-in period allows the tyre to settle itself onto the wheel rim, serves to "scuff-in" the tread surface and allows the rider to adjust to the 'feel' and handling of the new tyres.

After fitting, before moving off, ensure the tread surface is not contaminated in any way: clean off fitting lubricant, buff around the tread circumference with a dry cloth, and ensure the label is removed. Confirm correct tyre pressures.

Each time new tyres are fitted, the motorcycle should be driven very cautiously and the tyres not subjected to maximum power or speed for the first 100 miles, i.e. avoid sudden acceleration, maximum braking or hard cornering. Particular care should be taken on wet or greasy road surfaces.

Motorcycle Tyre Markings Chart



Items in red indicate that the information does not apply in the UK.

After 100 miles, the tyres should then be checked to ensure the correct seating and inflation. After this initial period, lean angles, acceleration and braking forces can be gradually increased.

Inspection and Maintenance

Regular inspection becomes increasingly important the longer the tyre is kept in service. Consumers are strongly

encouraged to be aware of their tyres' visual condition such as tread depth, cracking or crazing of the tread or sidewall rubber, cuts or bulges, foreign objects, as well as being alert to any change in dynamic performance or behaviour such as air loss, noise or vibration.

Driving over pot holes, kerbs and speed bumps, even at low speeds can result in the weakening or fracture of the tyre structure.

The consumer should be the first to recognise an in-service impact and then ensure immediate inspection by a tyre professional, who can also offer advice and guidance. Lumps or bulges could indicate internal damage and should be examined by a tyre specialist without delay.

Oil and grease should be removed with a suitable diluted detergent.

Watch your Tread

Tyre treads are designed to give good wet grip but the road surface condition also plays a significant role in tyre to road adhesion. In general, wet grip decreases as tyre tread patterns wear down and as the depth of surface water increases. Motorcyclists should take this into consideration and reduce speed when it is wet.

Motorcycle tyres normally have tread wear indicators in the tread grooves and as these are approached during the service life of your tyre you should consider replacement. Once the indicators are level with the tread surface the tyre should be renewed - but this should not be the only deciding factor on tyre replacement.

The legal limit of tyre tread depth in the UK for motorcycles over 50cc is 1mm across 3/4 of the width of the tread pattern and with visible tread on the remaining 1/4.
For motorcycles up to 50cc the law requires that all the grooves of the original tread pattern must be clearly visible. The legal requirements may differ in other countries.

It is recommended to consider replacing motorcycle tyres in advance of the legal requirement i.e. at 2mm.

Tyre Service Life and Ageing

Tyres can deteriorate with age which may show as cracking of the tread and sidewall rubber, sometimes accompanied by carcass deformation. Cracking is usually an indication that tyres have been in service for an extremely long time, but rubber deterioration may be brought about by poor storage conditions. If cracking is evident seek professional advice or replace the tyre.

Tyres should be removed from service for several reasons including tread wear (down to legal limit), damage (cuts, cracks or bulges etc.) or abuse (overloading or underinflation etc.). Deterioration of the tyre may not always be visible and may become apparent through loss of performance, noise or vibration etc.

Motorcyclists should consult their tyre specialist, the vehicle manufacturer or relevant tyre manufacturer regarding advice on the service life of their tyres.

The manufactured date of a tyre can be determined by the numbers at the end of the "DOT CODE" located on one lower sidewall of each tyre (E.g. " DOT XX XX XXX 2703" was manufactured in the 27th week of 2003).

Tyre Load and Speed Markings

Motorcycle tyres have markings to indicate their load and speed capabilities. These are moulded on the sidewall adjacent to, or part of, the size designation as a service description comprising a load index (e.g. '73' in table 1) for load carrying capacity and a speed symbol (e.g. 'W' in table 2) for speed capability.

Details of load indices and speed symbols can be found in tables 1 & 2.

It is strongly recommended to always fit tyres that have a load index and speed capability at least equal to or higher than those originally specified by the motorcycle manufacturer.

NB: Load carrying capacity is reduced for speeds in excess of 210km/h for 'V' speed rated tyres and 240 km/h for 'W' and above speed rated tyres. Consult the relevant tyre manufacturer for guidance on this issue

It is important that tyres are suitable for the maximum speed capability of the motorcycle. In some other countries this is a legal requirement.

Table 1 – Tyre Speed Marking Table

Speed Symbol	Maximum motorcycle speed for which tyre is suitable	
	Km/h	mph
Moped	50	30
J	100	62
K	110	69
L	120	75
M	130	81
P (or-)	150	95
Q	160	100
R	170	105
S	180	113
T	190	118
U	200	125
H	210	130
V*	240	150
W*	270	168
ZR*	over 240	over 150

* The maximum speed approved may be marked on the tyre as for example V230, meaning a maximum speed of 230km/h

Table 2 – Tyre Load Indices & Related Maximum Loads

Load Index	Load KG	Load Index	Load KG	Load Index	Load KG	Load Index	Load KG	Load Index	Load KG
20	80	35	121	50	190	65	290	80	450
21	82.5	36	125	51	195	66	300	81	462
22	85	37	128	52	200	67	307	82	475
23	87.5	38	132	53	206	68	315	83	487
24	90	39	136	54	212	69	325	84	500
25	92.5	40	140	55	218	70	335	85	515
26	95	41	145	56	224	71	345	86	530
27	97	42	150	57	230	72	355	87	545
28	100	43	155	58	236	73	365	88	560
29	103	44	160	59	243	74	375	89	580
30	106	45	165	60	250	75	387	90	600
31	109	46	170	61	257	76	400	91	615
32	112	47	175	62	265	77	412	92	630
33	115	48	180	63	272	78	425	93	650
34	118	49	185	64	280	79	437	94	670
								95	690

Tubes

Tyres which are marked 'Tube Type' or are **not marked** 'tubeless' **must** be fitted with an inner tube.

Ensure that the correct size and type is fitted. Always use a new tube when fitting a replacement tube type tyre or a tubeless tyre requiring an inner tube. Tubes which are stretched, thinned or excessively repaired may deflate without warning and should not be re-fitted.

Tubes must always be used with tyres fitted to wire spoked wheels, irrespective of whether the tyre is tubeless or tube type, except for those wire spoked rims specifically designed for tubeless tyres. A rim band or a rim tape of the correct type must be fitted to protect the tube from spoke head damage.

Tubes in Tubeless Tyres

Inner tubes of the correct size may only be used with tubeless tyres if correctly fitted, and approved by the individual tyre manufacturer. It must, however, be emphasised that the result of fitting tubes in tubeless tyres is that, in the event of a puncture, the assembly will behave in exactly the same way as a tube type tyre and tube assembly.

NB: Tubes should not be considered a puncture remedy.

Where tubes for certain low profile tubeless tyres are not available, an alternative size tube should not be fitted.

Valves

A new valve should be fitted when replacing tubeless tyres. When checking or adjusting inflation pressure always ensure that the valve is not leaking and a new cap of the sealing type should be used.

The fitment of a valve core with a steel spring is necessary for high speed usage.

Particular care must be taken to ensure that the valve is the correct size and type for the rim.

When a tube is fitted and the rim valve hole is designed for a large diameter rubber snap-in tubeless valve, it will be necessary to fit an adaptor collar or skirted lock nut to ensure correct valve location.