Tyres

Tyres are pushed to their limits when off-road, vehicle owners want a comfortable ride, handling as well as low noise under all conditions, in addition to puncture resistance, grip and flotation.

There Are Three Main Categories of Off-Road Tyres

• Highway Terrain (H/T).
• Mud Terrain (M/T).
• All Terrain (A/T).

All Terrain tyres offer a compromise between on and off-road ability, Mud Terrain tyres work best in more arduous off-road conditions whilst the Highway Terrain tyres are more suited to tarred or gravel roads. Most 4x4s are used as the main form of transport and do not regularly go off-road, so manufacturers tend to fit Highway Terrain tyres as original equipment.

Radial-ply tyres have parallel fabric casing cords that run from one side of the tyre to the other radially, making them more flexible. They also have layers of steel fabric running around the inner circumference just under the tread known as breaker belts. These steel belts ensure less tread movement under conditions of braking and acceleration and the flexible sidewalls ensure better tread contact when cornering. These days many manufacturers use light truck (LT) sidewall technology to make the sidewalls more puncture resistant. The radial cords running from bead to bead reduce inner deformation in the shoulder and sidewall areas.

One should check the ply rating, higher ply ratings tend to indicate that the tyre will be more resistant to stone damage and sidewall penetration. Tread depth is important as well, whilst less depth equates to less movement when cornering and braking, a deeper tread gives a better overall ride and is less resistant to tread area punctures.
Radial-ply Tyre Construction

- Tread
- Shoulder
- Side Wall
- Bead

- Belt Cover
- Belt
- Carcass
- Inner Liner
- Bead Filler
- Bead Wire
The Tyre’s Side-Wall Markings

195/65 R 15 91 H

- Speed Rating
- Load Index
- Rim Diameter (inch)
- Radial Construction
- Aspect Ratio (Series)
- Nominal Section Width (mm)

The Load Index An internationally recognised numerical code indicating the maximum load expressed in kilograms that a tyre can carry at a speed specified in km/h indicated by the speed rating symbol.

Speed Symbol Tyres are specified with speed ratings indicated by a speed symbol.

Tyre Speed Symbol Marking

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<th>Maximum Speed</th>
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<td>Speed symbol</td>
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<td>Speed (km/h)</td>
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Aspect Ratio This is the ratio between the tyre's height from bead to crown and its width from side-wall to side-wall shown as a %.

Bead The bead is section of a tyre that comes into contact with the wheel rim. Tyre beads are made of high-tensile steel and anchor the tyre to the rim. Bead locking rims are very useful when operating with tyres at low pressures. The locking bead keeps the tyre in position on the rim, stopping it from moving around or separating.
**Flotation** Flotation describes the tyre’s ability to stay on top of a surface and not sink in. This is achieved with a larger contact surface and low pressure and is used when driving on sand.

**Footprint** This describes the area of tread that is in contact with the terrain.

**Shoulder** This is the area on a tyre the area where the side-wall and tread meet.

**Side-Wall** This describes the side section of the tyre extending from the bead to the shoulder.

**Tread** The patterned surface made up of cleats or lugs which form a tread pattern. This part of the tyre comes in contact with the terrain. Tread patterns give an indication of their application and are recognisable between the A/T, M/T, and H/T types.

**Tyre Tips**

**Equipment**
- Take a tyre repair kit.
- A compressor or pump is essential.
- Always have a tyre pressure gauge. Incorrect pressures damage tyres.
- Fit metal valve caps with *O-Ring* seals.

**Maintenance**
- Inflate to the manufacturer’s recommendation and regularly check tyre pressures.
- Inspect your tyres and check the balance and alignment after a trip.
- Rotate tyres as recommended by the manufacturer.
Deflation and Pressure:
- Deflation improves flotation when driving on sand or mud.
- It results in a larger footprint and improves traction.
- Deflation will reduce ground clearance.
- A deflated tyre may come off the rim (de-bead).
- Hot tyres reflect inaccurate pressure readings.
- On rocky terrain, slight deflation allows the tyres to absorb shock and mould around rock surfaces giving better grip.
- A softer sidewall is also less prone to sidewall penetration.
- Re-inflate tyres as soon as conditions allow.
- Avoid wheel spin with deflated tyres.