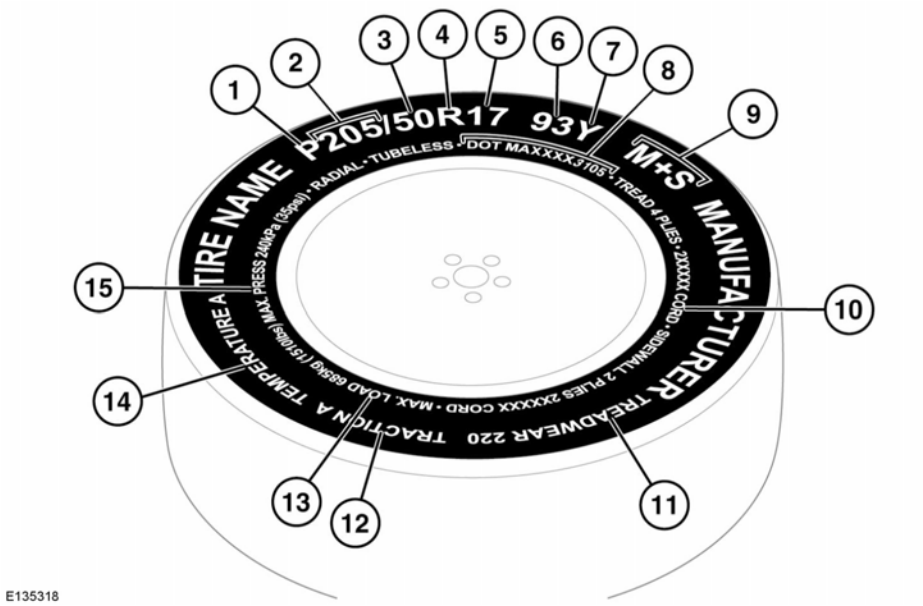
TIRE MARKINGS



1. **P** indicates that the tire is for passenger vehicle use. This index is not always shown.
2. The width of the tire from sidewall edge to sidewall edge, in millimeters.
3. The aspect ratio, also known as the profile, gives the sidewall height as a percentage of the tread width. So, if the tread width is 205 mm and the aspect ratio is 50, the sidewall height will be 102 mm.
4. **R** indicates that the tire is of Radial ply construction.
5. The diameter of the wheel rim given in inches.
6. The load index for the tire. This index is not always shown.

⚠WARNING

The load index and speed rating on all replacement tires should be, at least, the same specification as the original equipment. If in doubt consult, a Retailer/Authorized Repairer.

7. The speed rating denotes the maximum speed at which the tire should be used for extended periods. See **219, SPEED RATINGS**.

8. U.S. DOT Tire Identification Number (TIN): This begins with the letters DOT and indicates that the tire meets all federal standards. The next 2 numbers or letters are the plant code where the tire was manufactured, the last 4 numbers are the date of manufacture. For example, if the number was 3109, the tire was made in the 31st week of 2009. The other numbers are marketing codes used at the manufacturer's discretion. This information can be used to contact consumers if a tire defect requires a recall.
9. **M+S** or **M/S** indicates that the tire has been designed with some capability for mud and snow.
10. The number of plies in both the tread area and the sidewall area, indicates how many layers of rubber-coated material make up the structure of the tire. Information is also provided on the type of materials used.
11. Wear rate indicator: A tire rated at 400, for example, will last longer than a tire rated at 200.
12. The traction rating grades a tire's performance when stopping on a wet road surface. The higher the grade, the better the braking performance. The grades, from highest to lowest are; **AA**, **A**, **B** and **C**.
13. The maximum load which can be carried by the tire.
14. Heat resistance grading: The tire's resistance to heat is grade **A**, **B** or **C**, with **A** indicating the greatest resistance to heat. This grading is provided for a correctly inflated tire, which is being used within its speed and loading limits.
15. The maximum inflation pressure for the tire. This pressure should not be used for normal driving. See **223, AVOIDING FLAT SPOTS**.

SPEED RATINGS

Rating	Speed mph (km/h)
Q	99 (160)
R	106 (170)
S	112 (180)
T	118 (190)
U	124 (200)
H	130 (210)
V	149 (240)
W	168 (270)
Y	186 (300)

TIRE CARE

⚠WARNING

Do not drive the vehicle if a tire is damaged, excessively worn, or incorrectly inflated. A tire in such a condition may catastrophically fail and cause an accident.

⚠WARNING

Avoid contaminating the tires with vehicle fluids as they may cause damage to the tire and cause a tire failure, which can result in an accident.

⚠WARNING

Avoid spinning the wheels. The forces released can damage the structure of the tire, and cause it to fail.

⚠WARNING

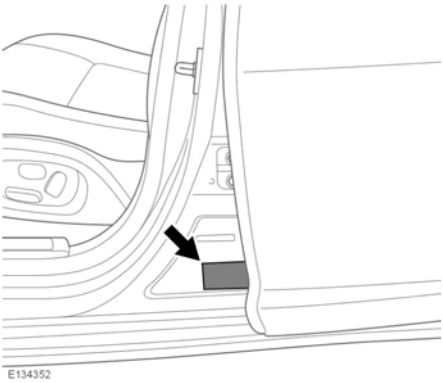
If wheel spin is unavoidable due to a loss of traction (in deep snow, for example), do not exceed the 30 mph (50 km/h) point on the speedometer. Do not allow anyone to stand near or directly behind a tire that might spin.

⚠WARNING

Do not exceed the maximum pressure stated on the sidewall of the tire.

All of the vehicle's tires (including the spare) should be checked regularly for damage, wear, and distortion. If you are in any doubt about the condition of a tire, have it checked immediately by a tire repair center or your Retailer/ Authorized Repairer.

TIRE PRESSURE LABEL



The recommended tire pressures are listed on a label located in the driver's door opening.

These pressures provide optimum ride and handling characteristics for all normal operating conditions.

- The label contains the following information:
  - The maximum number of occupants, divided between the front and rear of the vehicle.
  - The vehicle's capacity weight, which includes the weight of the driver, passengers and cargo.
  - Cold inflation pressures for the front, rear and spare tires.
  - The size of the tires with which the vehicle was originally equipped.

Note: *The labels must not be changed, even if different wheels and tires are fitted at a later stage.*

TIRE PRESSURES

⚠WARNING

All tire pressures, including the spare, should be checked regularly using an accurate pressure gauge, when the tires are cold. Failure to properly maintain your tire pressures could increase the risk of tire failure, resulting in a loss of vehicle control and potential personal injury.

⚠WARNING

Pressure checks should only be carried out when the tires are cold, and the vehicle has been stationary for more than 3 hours. A hot tire at, or below, the recommended cold inflation pressure, is dangerously under-inflated.

⚠WARNING

Never drive your vehicle if the tire pressures are incorrect. Under-inflation causes excessive flexing and uneven tire wear. This can lead to sudden tire failure. Over-inflation causes harsh ride, uneven tire wear, and poor handling.

⚠WARNING

Do not drive the vehicle with a leaking tire. Even if the tire appears to be inflated it could be dangerously under-inflated and will continue to deflate. Replace or contact an approved repairer.

⚠WARNING

Under-inflation also reduces fuel efficiency and tire tread life and may affect the vehicle's handling and stopping ability.

⚠WARNING

If the vehicle has been parked in strong sunlight, or used in high ambient temperatures, do not reduce the tire pressures. Move the vehicle into the shade and allow the tires to cool before rechecking the pressures.

Check the tires, including the spare, for condition and pressure on a weekly basis and before long trips.

If the tire pressures are checked while the vehicle is inside a protected covered area (e.g., a garage) and subsequently driven in lower outdoor temperatures, tire under-inflation could occur.

A slight pressure loss occurs naturally with time. If this exceeds 2 psi (0.14 bar) per week, have the cause investigated and rectified by qualified personnel.

If it is necessary to check tire pressures when the tires are warm, you should expect the pressures to have increased by up to 4 - 6 psi (0.3 - 0.4 bar). Do not reduce the tire pressures to the cold inflation pressure under these circumstances. Allow the tires to cool fully before adjusting the pressures.

The following procedure should be used to check and adjust the tire pressures:

NOTICE

To avoid damaging the valves, do not apply excessive force or sideways force on the gauge/inflator.

NOTICE

To avoid damage to TPMS valves, it is recommended not to use rigid tire inflation wands. This is to avoid the risk of excess leverage and sideways pressure on the valve.

1. Remove the valve cap.
2. Firmly attach a tire pressure gauge/inflator to the valve.
3. Read the tire pressure from the gauge and add air, if required.
4. If air is added to the tire, remove the gauge and re-attach it before reading the pressure. Failure to do so may result in an inaccurate reading.
5. If the tire pressure is too high, remove the gauge and allow air out of the tire by pressing the center of the valve. Refit the gauge to the valve and check the pressure.
6. Repeat the process, adding or removing air as required, until the correct tire pressure is reached.
7. Refit the valve cap.

	Up to 3 occupants		Maximum Gross Vehicle Weight (GVW)	
Tire size	**Front pressures psi (kPa)**	**Rear pressures psi (kPa)**	**Front pressures psi (kPa)**	**Rear pressures psi (kPa)**
135/80 R18 104 M	61 (420)	61 (420)	61 (420)	61 (420)
245/45 R18 100 H	35 (240)	35 (240)	43 (290)	48 (330)
245/40 R19 98 H	35 (240)	35 (240)	43 (290)	48 (330)
255/35 R20 97 H	35 (240)	35 (240)	43 (290)	48 (330)

TIRE VALVES

Keep the valve caps screwed down firmly to prevent water or dirt from entering the valve. Check the valves for leaks when checking the tire pressures.

NOTICE

Do not twist or bend the valves when attaching a pressure hose or gauge, as damage may result.

REPLACEMENT TIRES

⚠WARNING

Always fit replacement tires of the same type, and wherever possible, of the same make and tread pattern. Failure to fit the same type, make and tread pattern may reduce vehicle stability

⚠WARNING

If the use of tires not recommended by the vehicle manufacturer is unavoidable, make sure you read, and fully comply with, the tire manufacturer's instructions.

⚠WARNING

The load and speed index ratings on all replacement tires must be, at least, the same specification as the vehicle's original equipment. If in doubt, consult a Retailer/ Authorized Repairer.

⚠WARNING

If lower speed rated specialist tires are fitted (e.g., winter tires or off-road tires), the vehicle must be driven within the speed limitations of the tires. Consult a Retailer/ Authorized Repairer for further information.

⚠WARNING

Do not rotate the tires around the vehicle.

NOTICE

Tire removal and fitting should be carried out by a Retailer/Authorized Repairer.

NOTICE

When removing a tire from a wheel or fitting a tire to a wheel, make sure the Tire Pressure Monitoring System (TPMS) sensor is not damaged.

When the tread has worn down to approximately 2 mm, wear indicators start to appear at the surface of the tread pattern. This produces a continuous band of rubber across the tread, as a visual reminder.

Tires should be replaced in sets of 4. If this is not possible, replace the tires in pairs (both front or both rear). When tires are replaced, the wheels should always be re-balanced and the alignment checked.

For the correct tire specification and pressures, see **220, TIRE PRESSURES** or **220, TIRE PRESSURE LABEL**. Alternatively, contact a Retailer/Authorized Repairer for advice.

AVOIDING FLAT SPOTS

In areas of extended high ambient temperature, vehicle tires can be affected by a softening of the tire sidewall. If the vehicle is stationary for long periods, the effect is to slightly deform the tire at the point where the tire meets the standing surface. This is known as a flat spot.

This is normal tire behavior. However, when the vehicle is subsequently driven, vibration may be experienced from the flat spot. The condition will steadily improve with extra mileage.

In order to minimize flat spotting while the vehicle is stationary for a long period, tire pressures can be increased to the maximum, as stated on the tire's sidewall. The tires must be returned to the specified running pressures before driving. See **220, TIRE PRESSURES**.

TIRE DEGRADATION

Tires degrade over time, due to the effects of ultraviolet light, extreme temperatures, high loads, and environmental conditions. It is recommended that all tires, including the spare, are replaced at least every 6 years from the date of manufacture, but they may require replacement more frequently.

USING WINTER TIRES

Note: M+S *(mud and snow) tires have a level of winter performance.*

The **M+S** marking on the tire's sidewall indicates an 'all season' tire designed for use all year round, including cold temperatures, snow, and ice.

In many countries, legislation exists that requires the use of winter tires during specified periods of the year.

Note: *A dedicated winter tire often has a lower speed rating than the original equipment tire, and the vehicle must; therefore, be driven within the speed limitation of the tire. Consult your Retailer/Authorized Repairer for further information.*

This symbol identifies dedicated winter tires, which can be fitted if optimum winter traction is required, or the vehicle is to be used in more extreme winter conditions.

The tire pressures indicated on the vehicle's tire information label are for use in all conditions on the original equipment tires. If a reduced speed rating tire is fitted, the recommended pressures are only suitable for use below 100 mph (160 km/h).

Winter tires must be fitted to all 4 wheels.

For optimum traction, tires should be run in for at least 100 miles (160 km) on dry roads, before driving on snow or ice.

Use of dedicated winter tires may require a change of wheel size, depending on the original choice of wheel. All 4 wheels must be changed.

If fitted with standard rubber valves, the Tire Pressure Monitoring System (TPMS) warning lamp will flash for 75 seconds and then remain illuminated. The Message center will also display **TIRE PRESSURE MONITORING SYSTEM FAULT**.

When the original wheels and tires are refitted, the vehicle will need to travel a short distance to reset the TPMS and extinguish the warning lamp.

Approved winter tires			
Wheel size	**Tire size**	**Brand**	**Pattern**
17 inch wheels	225/55 R17 101V	Dunlop	WinterSport 4D
18 inch wheels	245/45 R18 100V	Pirelli	Sottozero 3
	245/45 R18 100V	Dunlop	WinterSport 3D
19 inch wheels	245/40 R19 98H	Pirelli	Sottozero 3
	245/40 R19 98T (Studded)	Nokian	Hakkapeliitta 8
20 inch wheels	255/35 R20 97V	Dunlop	WinterSport 3D

If in doubt, or for further information, contact a Retailer/Authorized Repairer.

USING SNOW CHAINS

⚠WARNING

Only use traction devices in heavy snow conditions, on compacted snow.

⚠WARNING

Dynamic Stability Control (DSC) must be switched off when using traction devices.

⚠WARNING

Never exceed 30 mph (50 km/h) when traction devices are fitted.

⚠WARNING

Never fit traction devices to a temporary-use spare wheel.

Traction devices approved by the vehicle manufacturer, may be used to improve traction in heavy snow conditions, on compacted snow.

If it becomes necessary to fit traction devices, the following points must be observed:

- Only vehicle manufacturer approved traction devices should be used on the vehicle. Only vehicle manufacturer approved traction devices have been tested to make sure that they do not cause damage to the vehicle. Contact a Retailer/Authorized Repairer for information.
- The wheels and tires fitted to this vehicle, must conform to the specifications of the vehicle manufacturer's original equipment. This will help to enhance the performance of the traction devices. See **218, TIRE MARKINGS**.
- Do not fit a traction device to a temporary-use spare wheel.
- Fit traction devices in pairs, on the same axle.
- Always read, understand, and follow the traction device manufacturer's instructions. Pay particular attention to the maximum speed and fitting instructions.
- Avoid tire/vehicle damage, by removing the traction devices as soon as the conditions allow.

Note: *When using snow chains, select Winter driving mode and switch DSC off. See* ***114, WINTER*** *and* ***90, SWITCHING DSC OFF****.*

UNITED STATES DEPARTMENT OF TRANSPORTATION

The following information relates to the tire grading system developed by the National Highway Traffic Safety Administration (NHTSA) which will grade tires by treadwear, traction, and temperature performance.

Note: *Tires that have deep tread, and winter tires, are exempt from these marking requirements.*

UNIFORM TIRE QUALITY GRADING

Quality grades can be found, where applicable, on the tire's sidewall, between tread shoulder and maximum section width. For example:

Treadwear 200 Traction AA Temperature A.

In addition to the marking requirements, passenger car tires must conform to Federal Safety Requirements.

TREADWEAR

The treadwear grade is a comparative rating, based on the wear rate of the tire when tested under controlled conditions on a specified government test course. For example, a tire graded **150** would wear one and one half (1½) times as well on the government course as a tire graded **100**.

The relative performance of tires depends upon the actual conditions of their use, however, this may depart significantly from the norm due to variations in driving habits, service practices, and differences in road characteristics and climate.

NOTICE

If treadwear is uneven across the tire, or a tire wears excessively, the vehicle should be checked by a Retailer/Authorized Repairer as soon as possible.

When the tread has worn down to approximately 2 mm, wear indicators start to appear at the surface of the tread pattern. This produces a continuous band of rubber across the tread, as a visual indicator.

⚠WARNING

Wear indicators show the minimum tread depth recommended by the manufacturers. Tires which have worn to this point will have reduced grip and poor water displacement characteristics. This can lead to accidents causing serious injury or death.

Note: *Local legislation may determine a greater tread depth to that shown by the tire wear indicators. It remains the driver's responsibility to make sure that the tread depth meets the local legal requirements. Do not rely on the tread depth indicators alone.*

TRACTION

The traction grades, from highest to lowest, are **AA**, **A**, **B**, and **C**. The grades represent the tire's ability to stop on wet pavement, as measured under controlled conditions on specified government test surfaces of asphalt and concrete. A tire marked **C** may have poor traction performance.

⚠WARNING

The traction grade assigned to this tire is based on straight-ahead braking traction tests and does not include acceleration, cornering, hydroplaning, or peak traction characteristics.

TEMPERATURE

The temperature grades are **A** (the highest), **B**, and **C**, representing the tire's resistance to the generation of heat and its ability to dissipate heat when tested under controlled conditions on a specified indoor laboratory test wheel.

Sustained high temperature can cause the material of the tire to degenerate and reduce tire life, and excessive temperature can lead to sudden tire failure.

The grade **C** corresponds to a level of performance which all passenger car tires must meet under the Federal Motor Safety Standard No. 109.

Grades **B** and **A** represent higher levels of performance on the laboratory test wheel than the minimum required by law.

⚠WARNING

The temperature grade for this tire is established for a tire that is properly inflated and not overloaded. Excessive speed, under-inflation, or excessive loading, either separately or in combination, can cause heat build up and possible tire failure.

TIRE GLOSSARY

lbf/in² or psi: Pounds per square inch, an imperial unit of measure for pressure.

kPa: Kilo Pascal, a metric unit of measure for pressure.

Cold tire pressure: The air pressure in a tire which has been standing in excess of 3 hours, or driven for less than 1 mile.

Maximum inflation pressure: The maximum pressure to which the tire should be inflated. This pressure is given on the tire's sidewall in lbf/in2 (psi) and kPa.

Note: *This pressure is the maximum allowed by the tire manufacturer; it is not the pressure recommended for use.*

Curb weight: The weight of a standard vehicle, including a full tank of fuel, any optional equipment fitted, and with the correct coolant and oil levels.

Accessory weight: The combined weight (in excess of those items replaced) of items available as factory installed equipment.

Production options weight: The combined weight of options installed which weigh in excess of 5 lb (2.3 kg) more than the standard items that they replaced, and are not already considered in curb or accessory weights. Items such as heavy duty brakes, high capacity battery, special trim, etc.

Vehicle capacity weight: The number of seats multiplied by 150 lb (68 kg), plus the rated amount of load/luggage.

Maximum loaded vehicle weight: The sum of curb weight, accessory weight, vehicle capacity weight, plus any production option weights.

Rim: The metal support for a tire, or tire and tube, upon which the tire beads are seated.

Bead: The inner edge of a tire that is shaped to fit to the rim and form an airtight seal. The bead is constructed of steel wires which are wrapped, or reinforced, by the ply cords.

Gross Vehicle Weight (GVW): The maximum permissible weight of a vehicle with driver, passengers, load, luggage and equipment.

STEPS FOR DETERMINING CORRECT LOAD LIMIT

⚠WARNING

Do not exceed the vehicle's capacity weight (the total weight of the driver, passengers and cargo) given on the tire information label.

1. Locate the statement "The combined weight of occupants and cargo should never exceed XXX kg or XXX lbs" on your vehicle's placard.
2. Determine the combined weight of the driver and passengers that will be riding in your vehicle.
3. Subtract the combined weight of the driver and passengers from XXX kg or XXX lbs.
4. The resulting figure equals the available amount of cargo and luggage load capacity. For example, if the "XXX" amount equals 1400 lbs. and there will be five 150 lb. passengers in your vehicle, the amount of available cargo and luggage load capacity is 650 lbs. (1400 – 750 (5 x 150) = 650 lbs).
5. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity calculated in Step 4.
6. If your vehicle will be towing a trailer, load from your trailer will be transferred to your vehicle. Consult this manual to determine how this reduces the available cargo and luggage load capacity of your vehicle.

The number and weight of passengers will affect the cargo and luggage capacity. In the example above, the cargo and luggage load capacity is 650 lb. However, if fewer passengers ride in the vehicle, the luggage load capacity will increase. If this vehicle carries three 150 lb passengers, the cargo and luggage load capacity will increase to 950 lb:

(3 x 150 = 450 lb, and 1400 - 450 = 950 lb).

If the passengers weigh more, the cargo and luggage load capacity will decrease.

⚠WARNING

The weight of accessories must also be subtracted from the cargo and luggage load capacity. If you are unsure of the weight of any accessories fitted to your vehicle, contact your Retailer/Authorized Repairer.

⚠WARNING

Overloading the vehicle will have an adverse effect on braking and handling characteristics, which could compromise your safety. Overloading a vehicle may also cause tire damage or failure. Never overload your vehicle.