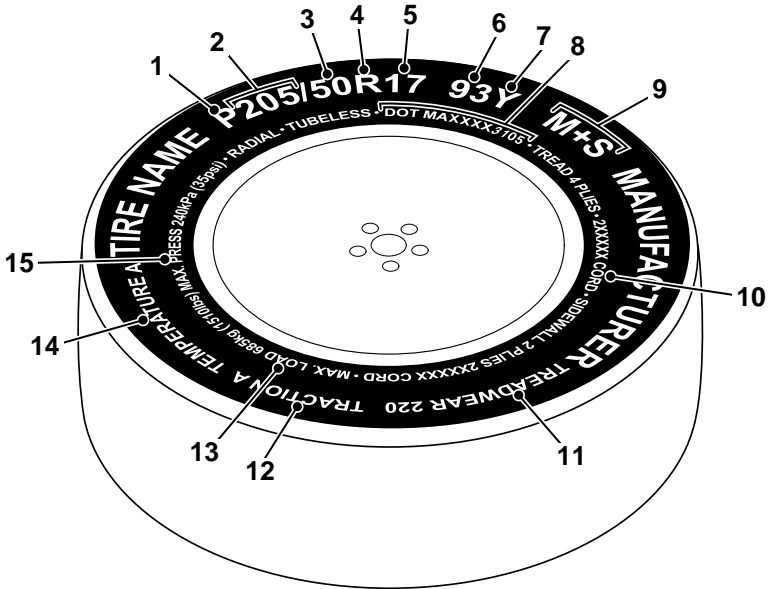


Wheels and tyres

GENERAL INFORMATION

Tyre markings



E80640

1. P indicates that the tyre is for passenger vehicle use.
2. The width of the tyre from sidewall edge to sidewall edge in millimetres.
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 tyre is of Radial ply construction.
5. The diameter of the wheel rim given in inches.
6. The load index for the tyre. This index is not always shown.
7. The speed rating denotes the maximum speed at which the tyre should be used for extended periods. †
8. Tyre manufacturing standard information, which can be used for tyre recalls and other checking processes. Most of this information relates to the manufacturer, place of manufacture etc. The last four numbers are the date of manufacture. For example, if the number was 3106, the tyre was made in the 31st week of 2006.
9. M+S or M/S indicates that the tyre has been designed with some capability for mud and snow.

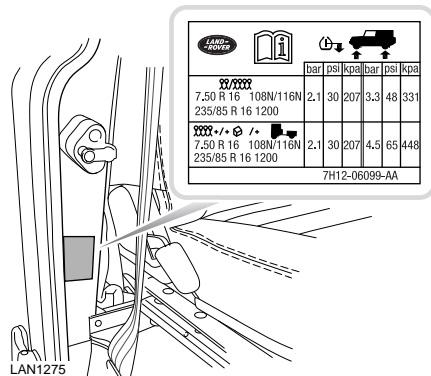
Wheels and tyres

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 tyre. Information is also provided on the type of materials used.
11. Wear rate indicator. A tyre rated at 400 for example, will last twice as long as a tyre rated at 200.
12. The traction rating grades a tyre'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 tyre.
14. Heat resistance grading. The tyre'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 tyre, which is being used within its speed and loading limits.
15. The maximum inflation pressure for the tyre. This pressure should not be used for normal driving. See **TECHNICAL SPECIFICATIONS** (page 116).

† Speed ratings

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

Tyre information label (Australia only)



A label providing information on the vehicle's tyre specifications, tyre pressures, rim size and maximum allowable loading weights is located on the right-hand 'B' post.

Wheels and tyres

TYRE CARE

WARNINGS



Defective tyres are dangerous. Do not drive the vehicle if a tyre is damaged, excessively worn, or incorrectly inflated. Doing so may lead to premature tyre failure.



Avoid contaminating the tyres with vehicle fluids as they may cause damage to the tyre.



Avoid spinning the wheels. The forces released can damage the structure of the tyre, and cause it to fail. Doing so may lead to premature tyre failure.



If wheel spin is unavoidable due to a loss of traction (in deep snow for example) do not exceed the 50 km/h (30 mph) point on the speedometer. Doing so may lead to premature tyre failure.

Note: Tyre condition should be checked after the vehicle has been used off-road. As soon as the vehicle returns to a normal, hard road surface stop the vehicle and check for damage to the tyres.

All of the vehicle's tyres (including the spare) must be checked regularly for damage, wear and distortion. If you are in any doubt about the condition of a tyre, have it checked immediately by a tyre repair centre, or your Land Rover Dealer/Authorised repairer.

Tyre wear

Good driving practise will increase the life of your tyres, and avoid unnecessary damage.

- Always ensure that the tyre pressures are correctly adjusted.
- Always observe the posted speed limits, and advisory speeds for bends.
- Avoid pulling away quickly, or hard acceleration.
- Avoid making fast turns or braking sharply.
- Wherever possible, avoid potholes, or obstacles on the road.
- Do not drive up kerbs, or rub the tyres against them when parking.

Wear indicators

WARNING



Wear indicators show the minimum tread depth recommended by the manufacturers. Tyres which have worn to this point will have reduced grip and poor water displacement characteristics.

CAUTION



If tread wear is uneven across a tyre, or the tyre wears excessively, the vehicle should be checked by your Land Rover Dealer/Authorised Repairer as soon as possible.

Wheels and tyres



E80236

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.

To maintain performance and grip the tyre must be replaced as soon as the wear indicator becomes visible. Sooner, if legislation requires replacement at a greater tread depth.

Note: *Tread depth should be checked regularly, in some cases more frequently than the service intervals. For advice on checking tyres contact your Land Rover Dealer/Authorised repairer, or a tyre dealer.*

Age degradation

Tyres degrade over time due to the effects of ultraviolet light, extreme temperatures, high loads, and environmental conditions. It is recommended that tyres are replaced at least every six years, but they may require replacement more frequently.

Land Rover recommends that even if unused, the spare tyre be replaced at the same time as the four road tyres.

Punctured tyres

WARNING



Do not drive the vehicle with a punctured tyre. Even if the punctured tyre has not deflated, it is unsafe to use as the tyre may deflate suddenly at any time.

No matter how carefully you drive, there is always the possibility of a puncture. Your vehicle is fitted with tubeless tyres, which may not leak if penetrated by a sharp object, provided the object remains in the tyre.

If, however, you feel a sudden vibration or ride disturbance while driving, or you suspect your tyre or vehicle has been damaged, immediately reduce your speed. Drive slowly, while avoiding heavy braking or sharp steering inputs, to the closest safe area out of the traffic. This may further damage the flat tyre, but your safety is more important.

Stop and inspect the tyres for damage. If a tyre is under-inflated or damaged, remove the tyre and wheel and replace it with the spare wheel. See **CHANGING A ROAD WHEEL** (page 108). If you cannot detect a cause, have the vehicle recovered to the nearest tyre dealer to have the vehicle inspected.

A puncture will eventually cause the tyre to lose pressure, which is why frequent checking of tyre pressures is important. Punctured or damaged tyres must be permanently repaired or replaced as soon as possible.

Tyre checks

Not all punctures result in the tyre deflating immediately. Therefore, it is important to check the tyres for damage and foreign objects, regularly.

Inspect the tyres for signs of punctures, damage, or under inflation. If any damage or deformity is detected, the tyre should be replaced. If a spare tyre is not available, then the vehicle should be recovered to a tyre repair centre, or Land Rover Dealer/Approved repairer.

Note: *The tyres should be checked immediately after any off-road use, and prior to using the vehicle on a public highway.*

Wheels and tyres

Replacement tyres

WARNINGS



Do not fit cross-ply tyres.



Do not fit tubed tyres.



Do not swap tyres around the vehicle. Tyres bed in to the specific characteristics of each wheel position.

Swapping them around may affect the vehicle's handling and traction.



Always fit replacement tyres of the same type, and wherever possible of the same make and tread pattern.



Replacement wheels should be genuine Land Rover parts. This will maintain the designed driving characteristics both on and off road.



If the use of tyres not recommended by Land Rover is unavoidable, ensure that you read, and fully comply with the tyre manufacturers instructions. Failure to do so may lead to tyre failure due to incorrect fitment or use.

Ideally, tyres should be replaced in sets of four. If this is not possible, replace the tyres in pairs (front and rear). When tyres are replaced, the wheels should always be re-balanced, and alignment checked.

The correct tyre specification for your vehicle can be found later in this book. See **TECHNICAL SPECIFICATIONS** (page 116).

Directional tyres

Directional tyres are designed to operate correctly when rotating forwards (when the vehicle is travelling forwards).

Typical direction indicators



E80237

Wheels and tyres

Tyre pressures

WARNINGS



Never drive your vehicle if the tyre pressures are incorrect.

Under-inflation causes excessive flexing and uneven tyre wear. This can lead to sudden tyre failure. Over-inflation causes a harsh ride, uneven tyre wear and poor handling.



Only perform pressure checks when the tyres are cold, and the vehicle has been stationary for more than three hours. A hot tyre at or below recommended cold inflation pressure is dangerously under-inflated.



If the vehicle has been parked in strong sunlight, or used in high ambient temperatures do not reduce the tyre pressures. Move the vehicle into the shade and allow the tyres to cool before re-checking the pressures.

You should check your tyre pressures (including the spare) at least once a week with normal on-road use, but check daily if the vehicle is used off-road. Always check the tyre pressures before setting off on a long journey.

Use a reliable gauge to check the pressures when the tyres are cold. Driving as short a distance as 3 km (1 mile) can warm the tyres up sufficiently to affect the tyre pressures.

If it is necessary to check tyre pressures when the tyres are warm, you should expect the pressures to have increased by up to 30 - 40 kPa (0.3 - 0.4 bar) (4 - 6 lbf/in²). Do not reduce the tyre pressures to the cold inflation pressure under these circumstances. Allow the tyres to cool fully before adjusting the pressures.

Checking the tyre pressures

WARNING



Tyre pressures should be checked regularly using an accurate pressure gauge, when the tyres are cold. Failure to properly maintain your tyre pressures could increase the risk of tyre failure resulting in loss of vehicle control and personal injury.

The following procedure should be used to check and adjust the tyre pressures. See **TECHNICAL SPECIFICATIONS** (page 116).

1. Remove the valve cap.
2. Firmly attach a tyre pressure gauge and inflator to the valve.
3. Read the tyre pressure from the gauge, and add air if required.
4. If air is added to the tyre, remove the gauge and re-attach it before reading the pressure. Failure to do so may result in an inaccurate reading.
5. If the tyre pressure is too high, remove the gauge and allow air out of the tyre by pressing the centre 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 tyre pressure is reached.
7. Refit the valve cap.

Note: It is an offence in certain countries to drive a vehicle with incorrect tyre pressures.

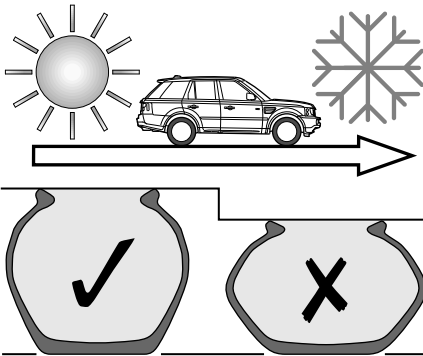
Note: It is the driver's responsibility to ensure that the tyre pressures are correct.

Tyre valves

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

Wheels and tyres

Pressure compensation for ambient temperature changes



E80321

If the ambient temperature drops, the tyre pressures will decrease, which may cause under inflation. This should be borne in mind when travelling to, or through, areas of lower temperature.

Under inflation causes the tyre side wall height to reduce, which in turn results in uneven tyre wear, and a risk of tyre failure.

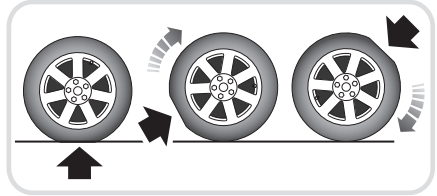
Tyre pressures may be adjusted before setting off on a journey to, or through, areas of low temperature. Alternatively, the tyre pressures can be adjusted when low temperature areas are reached.

Note: *If the tyre pressures are to be adjusted in the lower temperature area, the vehicle should be left standing for at least one hour prior to adjustment.*

Tyre pressures should be increased by 0.14 bar/14 kPa (2 lbf/in²) for each 10°C (20°F) temperature decrease.

Flat spots

If the vehicle is stationary for a long period when the ambient temperature is high, the tyres may form flat spots. When the vehicle is driven these flat spots will cause a vibration which will steadily disappear as the tyres warm up and regain their original shape.



E80322

In order to minimise flat spotting, you can increase the tyre pressures.

Tyre pressures can be increased by 0.14 bar/14 kPa (2 lbf/in²) for each 10°C (20°F) temperature increase above 20°C (68°F).

Long term storage

You can minimise flat spotting during long term storage by increasing the tyre pressures to the maximum indicated on the tyre sidewall.

Note: *Before you drive the vehicle again after a period of storage, you must check the tyre pressures and reduce them to the correct pressure if necessary.*

Wheels and tyres

USING WINTER TYRES

If winter tyres are fitted to the vehicle, the tyre manufacturers instructions should be followed. Pay particular attention to instructions regarding the maximum speed that the vehicle can be driven, and the correct pressures for the tyres.

CHANGING A ROAD WHEEL

Jack and tool kit

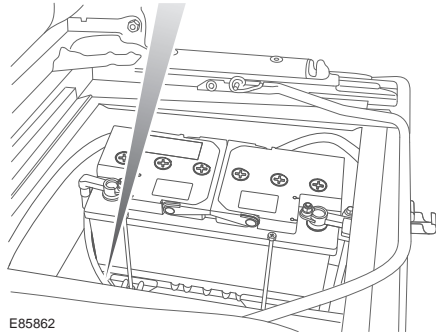
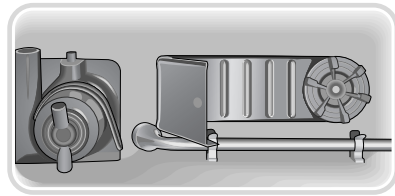
WARNING



After wheel changing, always secure tools, chock and jack and spare wheel in their correct storage positions.

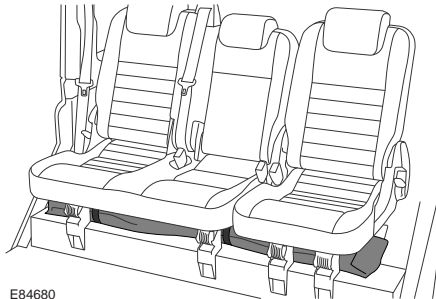
Your vehicle will be equipped with either a bottle jack or a pillar jack. It is important to read the operating instructions for the type of jack fitted to your vehicle.

The jack is stowed in one of the following positions:



E85862

- Under the left-hand front seat. See **MANUAL SEATS** (page 19).
- Behind the front seats.
- Beneath the rear seats.



E84680

The wheel brace and wheel chock are stored underneath the left-hand front seat.

Wheels and tyres

Care of the jack

Examine the jack occasionally, clean and grease the moving parts, particularly the ram (or pillar).

Check the oil level in a bottle jack at the normal servicing intervals. Top-up with hydraulic oil with viscosity to BS4231 grade 32 and ISO proof 32.

The bottle jack should always be returned to its fully-lowered position and must always be stored upright.

Spare wheel

WARNINGS



The spare wheel is heavy and if handled incorrectly may cause injury. Use extreme caution when lifting or manoeuvring the wheels.



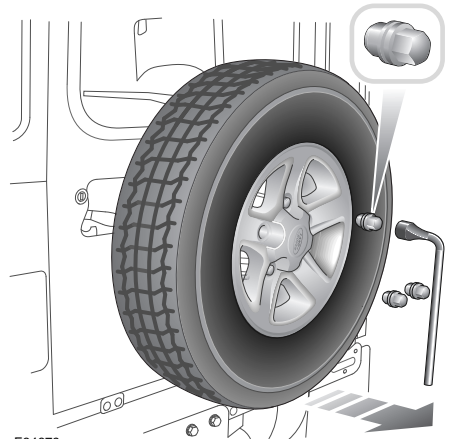
Do not use the spare wheel securing nuts in place of the road wheel nuts, or use the road wheel nuts to secure the spare wheel - the nuts are not interchangeable.

Note: In some markets, alloy wheels will have a locking wheel nut fitted to each road wheel.

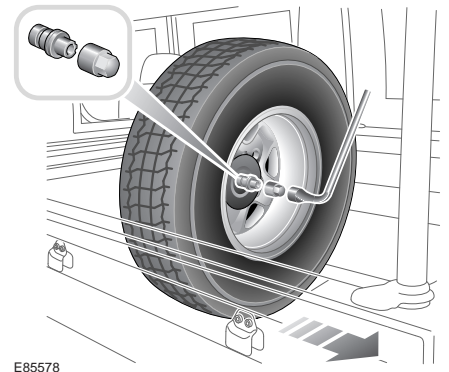
In other markets, there is a locking wheel nut securing the spare wheel.

Note: The location of the spare wheel differs dependant on body style.

Spare wheel - Station wagon



Spare wheel - Pick-up



1. Using the wheel brace supplied, remove the nuts securing the wheel cover.
2. Remove the nuts securing the spare wheel to the carrier and lift off the wheel.

Wheels and tyres

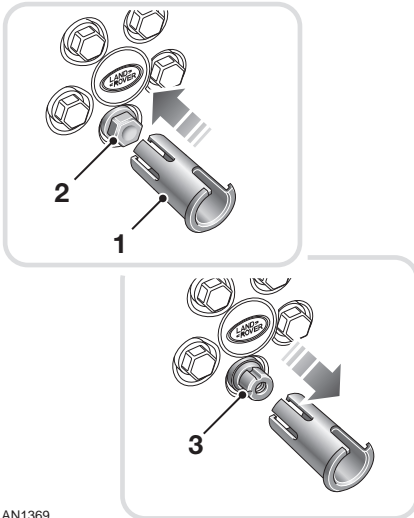
Locking wheel nuts

Locking wheel nuts can only be removed using the extractor tool and adapter.

Note: Store the adapter and extractor tool in a secure place, out of sight, in the vehicle.

Note: A code letter is stamped onto the face of the adapter. This letter must be recorded on the security card supplied with the literature pack. If a replacement adapter is required you will be asked to quote this number. The security card must be kept safe, but should not be kept with the vehicle.

Releasing locking wheel nuts

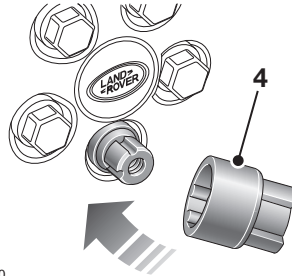


LAN1369

1. Push the extractor tool **1** over the locking wheel nut cover **2**, ensuring that it is fully engaged.

Note: If the extractor tool is inadvertently fitted to a standard wheel nut, it can only be released by removing the wheel nut. The wheel brace will fit inside the extractor tool and onto the wheel nut.

2. Pull the extractor tool squarely away from the wheel to remove the nut cover and reveal the locking wheel nut **3**.



LAN1370

Note: After use, store the wheel nut adapter correctly within the tool kit.

3. Fit the adapter **4** on to the locking wheel nut. The wheel nut can now be removed using the wheel brace.

Wheel changing safety


Before raising the vehicle, or changing a wheel ensure that you read, and comply with the following warnings.


WARNINGS


- ⚠ Always find a safe place to stop, off the highway and away from traffic.
- ⚠ Disconnect trailer or caravan from vehicle.
- ⚠ Switch on the hazard warning lamps.
- ⚠ Make sure that all passengers, and animals, are out of the vehicle, and in a safe place away from the highway.
- ⚠ Place a warning triangle at a suitable distance behind the vehicle, facing towards oncoming traffic.


Wheels and tyres


WARNINGS


 Make sure that the front wheels are in the straight ahead position, engage the steering lock and apply the parking brake.


 Engage 1st or reverse gear.


 Make sure that the jack is on firm level ground. Never position on soft ground, or over metal gratings or manhole covers.


 Never place anything between the jack and the ground, or the jack and the vehicle.


 Always chock the wheels using wheel chocks from the tool kit. Place the chocks on both sides of the wheel diagonally opposite the wheel to be changed.

 If jacking the vehicle on a slight slope is unavoidable, place the chocks on the downhill side of the two opposite wheels.

 Remove the spare wheel prior to jacking the vehicle. To avoid destabilising the vehicle when raised.

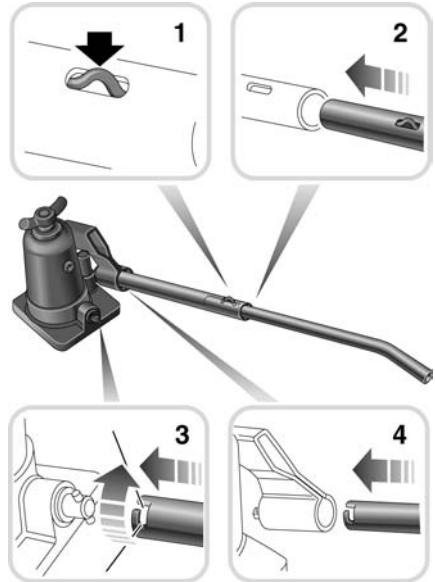
 No person should place any portion of their body under a vehicle supported by a jack. Always use vehicle support stands.

 Take care when lifting the spare wheel, and removing the punctured wheel. The wheels are heavy, and can cause injuries if not handled correctly.

 Take care when loosening the wheel nuts. The wheel brace may slip off if not properly attached, and the wheel nuts may give way suddenly. Either of these unexpected movements may cause an injury.

Note: The wheel chock is stowed in a compartment under the left-hand front seat. See **MANUAL SEATS** (page 19).

Operating the bottle jack



E84681

Before you position the bottle jack under the vehicle, make sure you are familiar with its mode of operation.

1. Slot the two parts of the jack lever together **1**, ensuring that the spring clip protrudes from the engagement slot where the two parts join **2**.
2. Close the jack release valve by using the notched end of the jack lever to turn the valve fully clockwise **3**.
3. Insert the lever into the socket as shown **4** and twist the lever to lock it into the socket.
4. Pump the lever up and down to raise the jack.

Wheels and tyres

5. To lower the jack, detach the lever (twist and pull) and then slot the notched end over the pegs on the release valve. Slowly turn the release valve counterclockwise allowing the weight of the vehicle to lower the jack

WARNING



Do not fully unscrew the release valve.

Positioning the bottle jack

WARNINGS



Never work beneath the vehicle with the bottle jack as the only means of support.



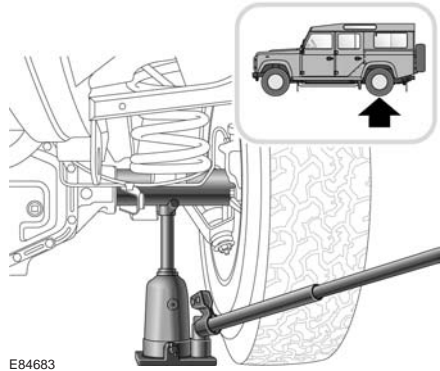
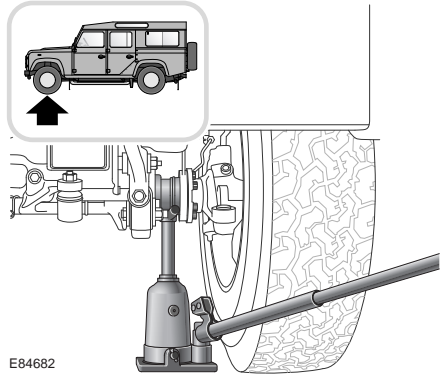
Never use the bottle jack from the side of the vehicle.



Always use the jack lever throughout, to minimise any accidental damage, injury from underbody parts or contact with a hot exhaust system.







Make sure that the bottle jack is always correctly located onto one of the jacking points illustrated below, or personal injury or damage to the vehicle could occur.



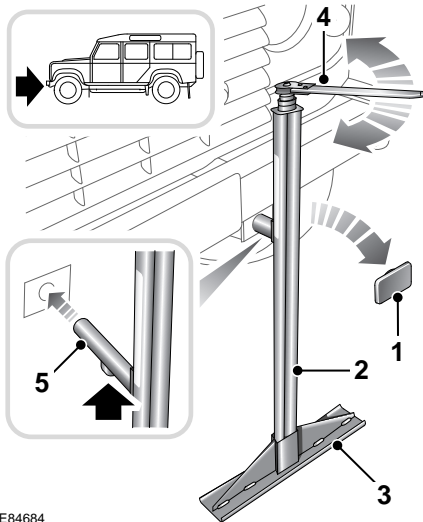
Wheels and tyres

Positioning the pillar jack

WARNINGS

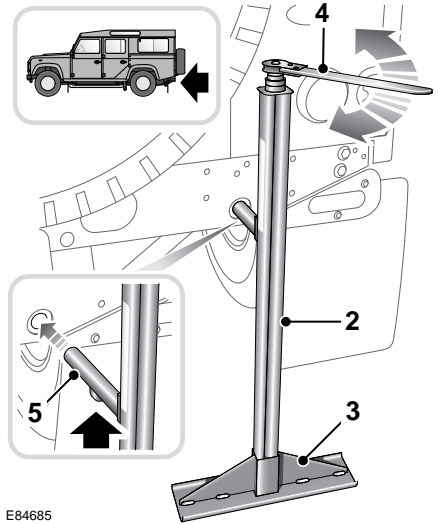
-  Make sure that you are familiar with operating the pillar jack before using it to raise a vehicle.
-  Do not use the jack without the base fitted - the vehicle would not be properly supported and could cause personal injury.
-  Make sure that the jacking peg is engaged in the jacking tube fully, as far as the shoulder (arrowed in illustration below).
-  Only jack the vehicle using the jacking points indicated below, or personal injury or damage to the vehicle could occur.

Front jacking point



E84684

Rear jacking point



E84685

1. If changing a front wheel, remove the rubber plug **1** from the jacking tube nearest the wheel to be changed.
2. Fully insert the jack pillar **2** into the base **3**.
3. Fit the ratchet handle **4** to the top of the pillar and adjust the height of the jacking peg **5** so that it can be inserted fully into the jacking tube.

Note: The jack handle operates as a ratchet - one side raises the jack, then turn the handle over to lower the jack.

Wheels and tyres

Changing a wheel

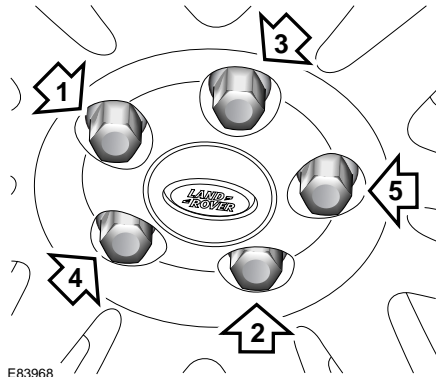
1. Read and observe all the warnings in **Wheel changing safety**.
2. Loosen the wheel nuts half a turn (counterclockwise).
3. Position the jack beneath the relevant jacking point by following the relevant instructions above.
4. Raise the vehicle using the jack with a slow steady operation. Avoid rapid, jerky actions as they may cause the vehicle or the jack to become unstable.
5. Remove the wheel nuts and place them together where they cannot roll away.
6. Remove the wheel and place to one side. Do not lay the wheel on its face, as this may damage the finish.

WARNING



When fitting a wheel, make sure that the mating faces of the hub and wheel are clean and free from rust or anti-seize compound - any accumulation of dirt or rust could cause the wheel nuts to become loose and result in an accident.

7. Fit the spare wheel, making sure that the wheel is making contact with the hub evenly. Refit the wheel nuts, and lightly tighten them.
8. Ensure that the space under the vehicle is clear of obstructions, and lower the vehicle slowly and smoothly.



Note: If it is not possible to torque the wheel nuts when a wheel is replaced, the wheel nuts should be tightened to the correct torque as soon as possible.

9. With all wheels on the ground and the jack removed, fully tighten the wheel nuts in the sequence indicated above to the correct torque of 133 Nm (98 lb.ft).
10. If an alloy spare wheel is to be fitted, using a suitable blunt tool, knock the centre cap out of the removed wheel. Using hand pressure only, press the centre cap into the newly fitted spare.
11. Return jack, tools, chock and spare wheel to their correct storage positions.
12. Check and adjust the tyre pressure as soon as possible. See **TECHNICAL SPECIFICATIONS** (page 116).

Wheels and tyres

USING SNOW CHAINS

WARNINGS



Only use snow chains in heavy snow conditions, on hard road surfaces.



Never exceed 50 km/h (30 mph) when snow chains are fitted.



Do not fit non-approved snow chains to the front wheels - this could damage brake components.

Land Rover approved snow chains may be used to improve traction on a hard road surface in heavy snow conditions. They should not be used in off-road conditions.

If it becomes necessary to fit snow chains, the following points should be observed:-

- **Rear wheels:** Snow chains can be fitted to the rear wheels of any vehicle provided that standard size wheels and tyres are fitted. See **TECHNICAL SPECIFICATIONS** (page 116).
- Ensure the gearbox differential is locked.
- If snow chains are to be fitted to the front wheels only, or to all four wheels, then only Land Rover approved snow chains should be used. Only Land Rover approved chains have been tested to ensure that they do not cause damage to the vehicle. Contact your Land Rover Dealer/Authorised repairer for information.
- Non-approved snow chains can be fitted to the rear wheels only.
- Always read, understand, and follow the snow chain manufacturer's instructions. Pay particular attention to the maximum speed, and tensioning instructions.
- Avoid tyre or vehicle damage by removing the snow chains as soon as the conditions allow.

TYRE GLOSSARY

Terms used

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 tyre pressure

The air pressure in a tyre which has been standing in excess of three hours, or driven for less than one mile.

Maximum inflation pressure

The maximum pressure to which the tyre should be inflated. This pressure is given on the tyre side wall in lbf/in² (psi) and kPa.

***Note:** This pressure is the maximum allowed by the tyre manufacturer. It is not the pressure recommended for use. See **TECHNICAL SPECIFICATIONS** (page 116).*

Kerb 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.

Gross vehicle weight

The maximum permissible weight of a vehicle with driver, passengers, load, luggage, equipment, and towbar load.

Accessory weight

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

Wheels and tyres

Production options weight

The combined weight of options installed which weigh in excess of 1.4 kg (3 lb) more than the standard items that they replaced, and are not already considered in kerb or accessory weights. Items such as heavy duty brakes, high capacity battery, special trim etc.

Vehicle capacity weight

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

Maximum loaded vehicle weight

The sum of kerb weight, accessory weight, vehicle capacity weight, plus any production option weights.

Rim

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

Bead

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

TECHNICAL SPECIFICATIONS

Wheel specifications

Wheel type	Wheel size	Tyre size
Alloy	7.0J x 16	235/85 R 16
Steel	6.5J x 16	7.50 R16C 7.50 R16
Steel	6JK x 16	205/80 R 16
Steel	5.5F x 16	7.50 R16C 7.50 R16
Steel	5.5J x 16	205/80 R 16 7.50 R16

Tyre pressures

Loading conditions		Tyre size	Pressure KPa/bar/psi
90 models All operating conditions.	Front	All	207/2.1/30
	Rear	All	262/2.6/38
110 models Normal conditions	Front	All	207/2.1/30
	Rear	All	331/3.3/48
110 models Vehicle loaded to gross maximum weight, and/or when towing	Front	All	207/2.1/30
	Rear	All	448/4.5/65
130 models All operating conditions	Front	All	310/3.1/45
	Rear	All	448/4.5/65