

Maintenance

OWNER MAINTENANCE

In addition to routine services and inspections, a number of simple checks must be carried out more frequently.

Caution: Any significant or sudden drop in fluid levels, or uneven tyre wear, should be reported to a Land Rover Dealer/Authorised Repairer without delay.

Daily checks

- Operation of lights, horn, direction indicators, wipers, washers and warning lights.
- Operation of seat belts and brakes.
- Look for fluid deposits underneath the vehicle that might indicate a leak.

Condensation drips from the Air Conditioning are normal.

- Engine oil level.
- Brake fluid level.
- Power steering fluid level.
- Screen washer fluid level.
- Tyre pressures and condition.
- Operate air conditioning.



WARNING:

If the brake pedal travel is unusually long or if there is any significant loss of brake fluid, contact your Land Rover Dealer/Authorised Repairer immediately. Driving under such conditions could result in extended stopping distances or complete brake failure.

DRIVING IN ARDUOUS CONDITIONS

When a vehicle is operated in arduous conditions, more frequent attention must be paid to servicing requirements.

For example: if your vehicle experiences deep wading conditions, DAILY servicing could be necessary to ensure the continued safe and reliable operation of the vehicle.

Arduous driving conditions include:

- Driving in dusty and/or sandy conditions.
- Driving on rough and/or muddy roads and/or wading.
- Driving in extremely hot or cold conditions.
- Towing a trailer or driving in mountainous conditions.

Contact a Land Rover Dealer/Authorised Repairer for advice.

PREPARATION FOR WINTER

Before the onset of winter, to prevent the door seals from freezing closed, apply Land Rover silicone spray to the seals across the tops of the doors.

This action will need to be repeated at the start of each winter to maintain protection.

Tyres

Tyre pressures



WARNING:

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

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

A cold tyre, at or below the recommended cold inflation pressure, is dangerously under-inflated.

Correctly inflated tyres will ensure that you enjoy the best combination of tyre life, ride comfort, fuel economy and road handling.

Under-inflated tyres wear more rapidly, can seriously affect vehicle road handling characteristics and fuel consumption, as well as increasing the risk of tyre failure.

Over-inflated tyres give a harsher ride, wear unevenly and are more prone to damage.

Tyre pressures should be checked at least once a week with normal road use, but should be checked DAILY if the vehicle is used off-road.

Check the pressures (including the spare wheel) when the tyres are cold - be aware that it only takes a mile of driving to warm up the tyres sufficiently to affect the tyre pressures.

Note: Air pressure naturally increases in warm tyres; if it is necessary to check the tyres when they are warm (after the vehicle has been driven for a while), you should expect the pressures to have increased by up to 30 - 40 kPa (0.28 - 0.4 bar/4 - 6 lbf/in²). In this circumstance, **DO NOT** let air out of the tyres in order to match the recommended cold tyre pressures.

Tyres

SNOW CHAINS

Snow chains are designed for use on metalled roads in extreme snow conditions only, and are not recommended for off-road use. If it is necessary to fit snow chains to your vehicle, ALWAYS observe the following:

- The correct position (front, rear, or both) for snow chains is given in the main vehicle handbook. You must refer to the vehicle handbook BEFORE fitting snow chains.
- Whether chains are to be fitted to the front wheels, rear wheels, or to all four wheels, then ONLY Land Rover approved chains should be used - these are designed for your vehicle and will eliminate any risk of damage to other components. Approved snow chains are only available from a Land Rover Dealer/Authorised Repairer.
- Always adhere to the snow chain fitting and retensioning instructions and the speed limitations recommended for varying road conditions. NEVER exceed 50 km/h (31 mph).
- ONLY fit snow chains in pairs.
- Avoid tyre damage by removing the chains as soon as the road is free from snow.
- If you are unsure as to any aspect of snow chain fitment or use please consult your Land Rover Dealer/Authorised repairer.

Caution: DO NOT fit unapproved snow chains - this could damage tyres, wheels, suspension and brake components and could result in damage to the bodywork of the vehicle.

TYRE PRESSURE MONITORING SYSTEM

Your vehicle may be equipped with a Tyre Pressure Monitoring System (TPMS) which monitors pressure in each tyre, including a full-size spare tyre. Temporary spare tyres are not fitted with sensors and are consequently not monitored.



WARNING:

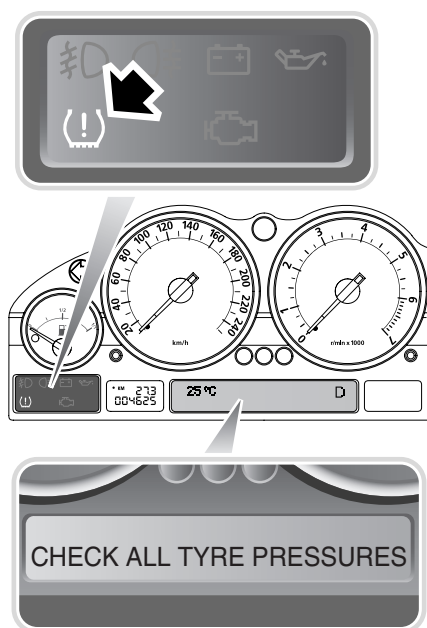
The TPMS is NOT a substitute for manually checking tyre pressures. The tyre pressure should be checked regularly, when cold, using an accurate pressure gauge. Failure to properly maintain your tyre pressures could increase the risk of tyre failure, with consequential loss of vehicle control and personal injury.

The TPMS can NOT register damage to a tyre. Regularly check the condition of your tyres, especially if the vehicle is driven off-road.

TPMS operation

The system monitors the pressure of the tyres via sensors located in each wheel and a receiver located within the vehicle. Communication between sensor and receiver is via Radio Frequency (RF) signals.

Tyres



H6559L

The tyre pressure warning comprises a yellow warning telltale within the instrument cluster and an associated message within the message centre.

Each tyre, including the spare (if provided), should be checked monthly when cold and inflated to the inflation pressure recommended by the vehicle manufacturer on the vehicle placard or tyre inflation pressure label. (If your vehicle has tyres of a different size than the size indicated on the vehicle placard or tyre inflation pressure label, you should consult the appropriate section of this owner's handbook to determine the proper tyre inflation pressure.)

When the low tyre pressure telltale is illuminated, one or more of your tyres is significantly under-inflated.

You should stop and check your tyres as soon as possible and inflate them to the proper pressure.

Driving on a significantly under-inflated tyre causes the tyre to overheat and can lead to tyre failure. Under-inflation also reduces fuel efficiency and tyre tread life, and may affect the vehicle's handling and stopping ability.

Caution: When inflating the tyres, care should be taken to avoid bending or damage to the TPMS valves. Always ensure correct alignment of the inflation head to the valve stem.

Your vehicle has also been equipped with a TPMS malfunction telltale to indicate when the system is not operating properly. When the malfunction telltale is illuminated, the system may not be able to detect or signal low tyre pressure as intended. TPMS malfunctions may occur for a variety of reasons, including the installation of incompatible replacement tyres on the vehicle. Always check the TPMS malfunction telltale after replacing one or more tyres on your vehicle to ensure that the replacement tyres are compatible with the TPMS.

Full-size spare wheel and tyre change

Should it be necessary to change a wheel and tyre with the spare, then the system will automatically recognise the change in wheel positions. After driving above 25 km/h (18 mph), the TPMS warnings will clear typically within five minutes.

Tyres

Temporary spare wheel and tyre change

Should it be necessary to change a wheel and tyre with the temporary spare, then the system will automatically recognise the change in wheel positions. Then, after approximately 10 minutes of driving above 25 km/h (18 mph), the yellow warning telltale will illuminate and a text message, e.g. **FRONT RIGHT TYRE PRESSURE NOT MONITORED** will be displayed and accompanied by an audible warning.

Spare tyre pressure

The spare tyre should be inflated to the highest pressure for the specified tyre size.

If a tyre needs to be changed

It is recommended that you always have your tyres serviced by a Land Rover Dealer/ Authorised Repairer or qualified technician. If a TPMS is fitted, each wheel and tyre assembly, with the exception of a temporary spare, is equipped with a tyre pressure sensor connected to the tyre valve stem.

In order to avoid damage to the sensor, the tyres **MUST** be removed and refitted to the road wheel in a specified manner. Care must be taken to avoid contact between the bead of the tyre and the sensor during removal and refitting of the tyre, otherwise the sensor may become damaged and/or inoperable.



WARNING:

Valve stem seal, washer, nut, valve core and cap should be replaced at every tyre change.

Valve stem seal, washer and nut must be replaced if valve retention nut is loosened. Sensor units and nuts must be refitted using correct torques and associated torque profile.

Sensors can be removed from the wheel by unscrewing the valve retention nut

Replacement sensor fitment procedure

A replacement sensor must be fitted to a running wheel in order to be recognised by the system. Recognition only occurs when the vehicle is driven above 25 km/h (18 mph) for approximately 10 minutes.

Should the TPMS warning for any wheel not clear, even after ensuring correct inflation and driving for more than 10 minutes above 25 km/h (18 mph), please consult your Land Rover Dealer/Authorised Repairer.

Cleaning and Vehicle Care

WASHING YOUR VEHICLE



Caution: Read individual product warnings before using any car cleaning or washing products.

Some high pressure cleaning systems are sufficiently powerful to penetrate door and window seals and damage rubbing strips and locking mechanisms. Never aim the water jet directly at heater air intakes, body and sunroof seals, or at any components that might easily be damaged.

Wash your vehicle frequently using a sponge and generous quantities of cold or lukewarm water containing a car shampoo. Rinse and dry off with a chamois leather.

- Do not use hot water!
- Do not use detergent soap products or washing-up liquid!
- In hot weather, do not wash the vehicle in direct sunlight.

Removing tar spots

Use white spirit to remove tar spots and stubborn grease stains from paintwork. Then wash immediately with soapy water to remove all traces of spirit.

Underbody maintenance

Corrosive materials used for snow and ice removal and dust control can collect on underbody parts. If these materials are not removed, accelerated rusting can occur. Use a hose to regularly flush the underbody with plain water, taking particular care to thoroughly clean those areas where mud and other debris can easily collect.

Similarly, after off-road driving or wading in muddy or salt water conditions, use a hose to wash underbody components and other exposed parts of the vehicle.

When using a hose, do not direct the jet into the heater air intake ducts, or through the wheel trim apertures onto the brake components, or at the door, window or sunroof seals, where water pressure could penetrate the seals.

If damage or corrosion to the underbody area is detected, please have the vehicle checked by a Land Rover Dealer/Authorised Repairer at the earliest opportunity.

Cleaning after off-road driving

Caution: Ensure that the areas around air intakes and the front grille are clean and clear of debris. Pay particular attention to the lower grille and radiator. Failure to do so may cause the engine to overheat, leading to severe engine damage.

Ensure that the vehicle and underside is cleaned soon after off-road driving, taking particular care to clean areas where mud and debris has compacted.

Technical Data

WHEELS AND TYRES

Tyre inflation pressure

It is important that tyres be properly inflated. Air pressure enables a tyre to support the vehicle load, so proper inflation is critical. Failure to maintain correct inflation pressures may result in rapid and uneven tread wear, erratic vehicle handling and excessive heat build-up, which may result in tyre failure.

It is impossible to determine if a tyre is properly inflated just by looking at it.

Tyre pressures listed in the owner's handbook are considered to be the recommended cold tyre inflation pressure, at maximum gross vehicle weight condition, measured when the tyres are **cold**, after the vehicle has been parked for at least 3 hours or driven less than 3 miles (5 km). Tyre pressures at normal operating conditions are shown in the table above.

When you drive for more than 3 miles (5 km), the tyres, and the air inside them, warm up and it is normal for the tyre pressure to increase above the recommended cold pressure. When checking tyre pressure in this condition, never 'bleed' or reduce air pressure.

Accessory wheels - insert details

Wheel size	Tyre	Snow Chain Fitment	
		Front	Rear

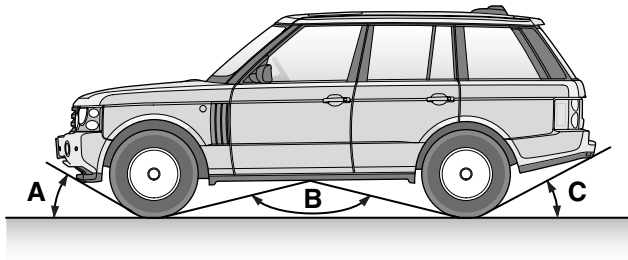
Accessory tyres - insert details

Loading condition	Position	Tyre Pressure
Normal operating conditions	Front	
	Rear	
Vehicle loaded to maximum gross vehicle weight	Front	
	Rear	

Note: Accessory fit off-road tyres (with a speed rating of Q or T) are subject to speed restrictions. Q-rated tyres should not be used at speeds greater than 160 km/h (100 mph), T-rated tyres should not be used at speeds greater than 190 km/h (118 mph).

Technical Data

RANGE ROVER OFF-ROAD DATA

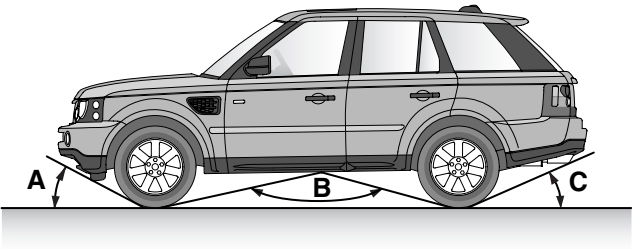


H7002G

A	Approach angle (at EEC kerb weight and Off-road height)	34°
B	Breakover angle (at EEC kerb weight and Off-road height)	120°
C	Departure angle without tow hitch (at EEC kerb weight) Off-road height	26.6°
	Departure angle with tow hitch (at EEC kerb weight) Off-road height	17.4°
	Minimum ground clearance (Off-road height)	283 mm (11.1 in)

Technical Data

RANGE ROVER SPORT OFF-ROAD DATA

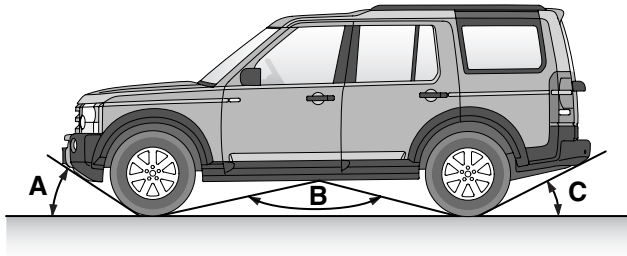


H7003G

A	Approach angle (at EEC kerb weight and Off-road height)	34°
B	Breakover angle (at EEC kerb weight and Off-road height)	130°
C	Departure angle without tow hitch (at EEC kerb weight) Off-road height	29.0°
	Departure angle with tow hitch (at EEC kerb weight) Off-road height	17.8°
	Minimum ground clearance (Off-road height)	227 mm (8.9 in)
	Maximum gradient (at EEC kerb weight): Continuous operation	35°
	Drive through operation	45°

Technical Data

DISCOVERY 3/LR 3 OFF-ROAD DATA



H7004G

Air Suspension

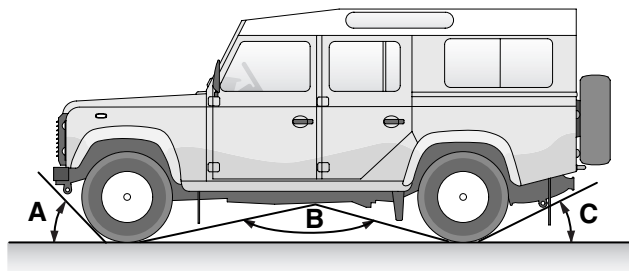
A	Approach angle (at EEC kerb weight and Off-road height)	37.2°
B	Breakover angle (at EEC kerb weight and Off-road height)	124.2°
C	Departure angle without tow hitch (at EEC kerb weight and Off-road height)	29.6°
	Departure angle with tow hitch (at EEC kerb weight) Off -road height	18.5°
	Minimum ground clearance (Off-road height)	240 mm (9.4 in)
	Maximum gradient, nose up/down: Continuous operation Drive-through	35° 45°

Coil Spring Suspension

A	Approach angle (at EEC kerb weight)	32.2°
B	Breakover angle (at EEC kerb weight)	157.2°
C	Departure angle without tow hitch (at EEC kerb weight)	24.9°
	Departure angle with tow hitch (at EEC kerb weight)	15.7°
	Minimum ground clearance (Off-road height)	185 mm (7.3 in)
	Maximum gradient, nose up/down: Continuous operation Drive-through	35° 45°

Technical Data

DEFENDER OFF-ROAD DATA



H7006G

110 Station Wagon illustrated

90 models

	Maximum gradient (at EEC kerb weight)	45°
A	Approach angle (at EEC kerb weight): Soft top & Pick-up	48°
	Hard top & Station Wagon	51.5°
B	Breakover angle (at EEC kerb weight): Soft top & Pick-up	145°
	Hard top & Station Wagon	141°
C	Departure angle (at EEC kerb weight): Soft top & Pick-up	49°
	Hard top & Station Wagon	53°
	Minimum ground clearance (unladen):	253.5 mm (10 in)
	Soft top & Pick-up	191 mm (7.5 in)
	Hard top & Station Wagon	229 mm (9 in)

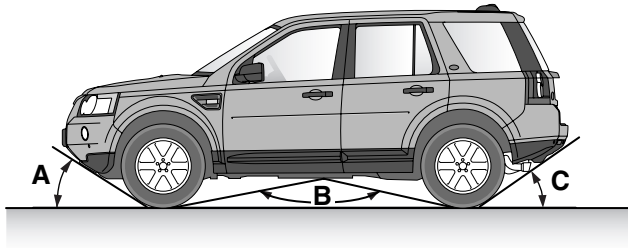
110 & 130 models

	Maximum gradient (at EEC kerb weight)	45°
A	Approach angle (at EEC kerb weight)	50°
B	Breakover angle (at EEC kerb weight): 110 models	152°
	130 models	155°
C	Departure angle (at EEC kerb weight): 110 models	35°
	130 models	34°
	Minimum ground clearance (unladen)	215 mm (8.5 in)

Note: Departure angles do not account for the addition of a tow hitch.

Technical Data

FREELANDER 2/LR 2 OFF-ROAD DATA



H7349G

A	Approach angle (at EEC kerb weight)	31°
B	Breakover angle (at EEC kerb weight)	157°
C	Departure angle without towbar (at EEC kerb weight)	34°
	Departure angle with towbar (at EEC kerb weight)	18°
	Minimum ground clearance	186 mm (7.3 in)
	Maximum wading depth	500 mm (19.7 in)