

# Vehicle battery

## BATTERY WARNING SYMBOLS



Do not allow any naked flames, or other sources of ignition near the battery as the battery may emit explosive gasses.



Ensure that when working near, or handling the battery, suitable eye protection is worn. This will reduce the risk of eye damage caused by acid splashes.



To prevent risk of injury, do not allow children near the battery.



Be aware that the battery may emit explosive gasses.



The battery contains acid which is extremely corrosive, and toxic.

## BATTERY CARE



Do not allow the battery electrolyte (fluid) come into contact with your skin or eyes. It is both corrosive and toxic, and the resulting injuries can be severe. If any electrolyte does come into contact with your skin or eyes, immediately rinse the affected area with clean, cold water. Immediate medical advice will be required.



If battery electrolyte comes into contact with your skin and/or clothes you should remove the affected clothing and flush the skin with copious amounts of water. Seek medical assistance immediately.



If battery electrolyte comes into contact with your eyes, flush with copious amounts of clean cold water. Seek medical assistance immediately, and continue to flush with water.



If swallowed, battery electrolyte can be fatal. If electrolyte is swallowed seek medical assistance immediately.



Do not connect any 12 volt equipment directly to the battery terminals. Doing so may cause a spark, which can result in an explosion.



The cell plugs and vent pipe must be in place at all times when the battery is connected to the vehicle. Ensure that the vent pipe is clear of obstructions and not kinked. Failure to do so may cause a pressure build up in the battery, resulting in an explosion.



Do not expose the battery to a naked flame or spark as the battery produces explosive, flammable gas.



Never jump start (boost) or charge, a frozen battery. Doing so can result in an explosion.



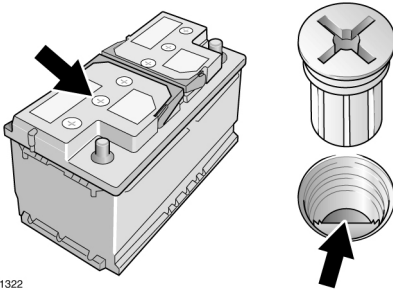
Remove all metal jewellery before working on, or near, the battery, and never allow metal objects or vehicle components to come into contact with the battery terminals. Metal objects can cause sparks, and/or short circuits, resulting in an explosion.



Do not allow the battery posts or terminals to come into contact with your skin. They contain lead, and lead compounds which are toxic. Always wash your hands thoroughly after handling the battery.

Your vehicle is fitted with a low maintenance battery.




In hot climates more frequent checks of the battery electrolyte level and condition are required. If necessary, the battery cells can be topped up using distilled water.



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Unscrew the six cell plugs and store carefully. Check that the surface of the liquid (electrolyte) is level with the plastic level indicator. If necessary, top up with distilled water, but never overfill. Refit the six cell plugs.

## STARTING A DISABLED VEHICLE USING BOOSTER CABLES

-  **Rotating parts of the engine can cause serious injury. Take extreme care when working near rotating parts of the engine.**
-  **Before attempting to start the disabled vehicle, make sure that the parking brake is applied, or suitably chock the wheels. Make sure that Park is selected or the manual gearbox is in neutral.**
-  **Suitable eye protection must be worn when working in the area of the battery.**



**Do not attempt to start the disabled vehicle if it is suspected that the electrolyte in the battery is frozen.**



**During normal use, batteries emit explosive gas sufficient to cause severe explosions and capable of causing serious injury - keep sparks and naked lights away from the engine compartment.**



Make sure there is no physical contact between the donor and disabled vehicles other than the booster cables.



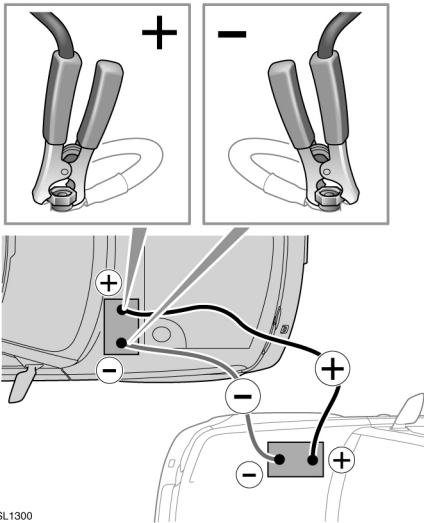
Make sure that the slave battery or starting aid is a 12 volt device.



Disconnect the battery cables prior to operating any electrical equipment.

**Note:** Before connecting booster cables ensure that the battery connections on the disabled vehicle are correct, and that all electrical equipment has been switched off.

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1. Connect one end of the positive (Red) booster cable to the positive terminal on the donor vehicle's battery.
2. Connect the other end of the positive booster cable to the positive terminal on the disabled vehicle's battery.
3. Connect one end of the negative (Black) booster cable to the negative terminal on the donor vehicle's battery.
4. Connect the other end of the negative booster cable to a suitable earth point on the disabled vehicle. The earth point should be at least 0.5 metres (20 inches) away from the battery, and as far as possible from any fuel or brake pipes.

**Note:** Check that all cables are clear of any moving components, and that all four connections are secure.

5. Start the engine of the donor vehicle, and allow it to idle for a few minutes.
6. Start the engine of the disabled vehicle.

**Note:** Do not switch on any electrical circuits on the previously disabled vehicle until after the booster cables have been removed.

7. Allow both vehicles to idle for a few minutes.
8. Switch off the donor vehicle.
9. Disconnect the negative (Black) booster cable from the previously disabled vehicle.
10. Disconnect the negative (Black) booster cable from the battery of the donor vehicle.
11. Disconnect the positive (Red) booster cable from the previously disabled vehicle.
12. Disconnect the positive (Red) booster cable from the donor vehicle.

## STARTING A DISABLED VEHICLE USING A STARTING AID

To start the vehicle using a starting aid or a slave battery, follow the instructions in the sequence given.

1. Connect the positive (Red) booster cable to the positive battery terminal of the disabled vehicle.
2. Connect the negative (Black) booster cable to the ground (-) terminal of the battery.
3. Start the engine and allow it to idle.
4. Disconnect the negative (Black) booster cable from the battery terminal of the vehicle.
5. Disconnect the positive (Red) booster cable from the battery terminal of the vehicle.

## REMOVING THE VEHICLE BATTERY



Switch the ignition off before disconnecting battery terminals. Always disconnect the negative terminal first and reconnect last.



Use caution when lifting the battery out of, or into, the vehicle. It is heavy, and may cause injury when lifting, or if dropped.



Do not tip the battery when lifting or moving as tilting the battery more than 45 degrees may damage the battery, and may cause the electrolyte to leak out. Battery electrolyte is highly corrosive, and toxic.



Do not rest the battery on any part of the vehicle as it may cause damage due to its weight.



Do not run the engine with the battery disconnected. Doing so may damage the charging system.

1. Ensure that all electrical circuits are switched off, all windows are closed, and the alarm is disarmed.
2. Remove the remote control from the vehicle and wait two minutes to allow the systems to power down fully.
3. Undo the negative clamp, and lift the cable and clamp clear of the battery terminal.
4. Undo the positive clamp, and lift the cable and clamp clear of the battery terminal.
5. Undo the battery clamp and lift the battery clear of the vehicle.

## CHARGING THE VEHICLE BATTERY



Ensure that the correct type and rating of charger used. Using an unsuitable charger may damage the battery, and could cause the battery to explode.



Always charge the battery in a well ventilated area away from any naked flames, sparks or other ignition sources. During charging the battery can produce a highly explosive and flammable gas.



The battery must be disconnected and removed from the vehicle before charging. Failure to do so could result in damage to the vehicle's electrical system.



Always follow the instructions supplied with the battery charger. Failure to do so may result in damage to the battery.

1. Disconnect the battery and remove it from the vehicle.
2. Connect the battery charger in accordance with the charger manufacturer's instructions.
3. Once the charge is complete switch off the power to the charger.
4. Disconnect the charger cables from the battery.
5. Allow the battery to stand for an hour before connecting to the vehicle. This will allow any explosive gasses to dissipate, and reduce the risk of explosion.

## EFFECTS OF DISCONNECTING

Disconnecting the battery can affect a number of vehicle systems, especially if there is insufficient battery power prior to disconnection. For example, the alarm may trigger depending on it's state when the battery was disconnected. If the alarm does sound, use the remote control in the normal way to disarm the security system. The windows may need recalibrating to operate correctly.

## REPLACEMENT BATTERIES



**Only fit a battery of the correct type and rating. Fitting an incorrect battery may result in a fire, or damage to the electrical system. If you are in any doubt when fitting a battery seek qualified assistance.**

## BATTERY DISPOSAL



Used batteries must be disposed of correctly as they contain a number of harmful substances. Seek advice on disposal from your Dealer/Authorised Repairer and/or your local authority.

## REFITTING



**When refitting the battery ensure that no metal objects, or vehicle components, come into contact with the battery terminals. Metal objects can cause a spark or short circuit, both of which may result in an explosion.**



Ensure that when fitting a battery to the vehicle, the terminals and battery clamps are clean, and lightly coated with petroleum jelly. This will ensure good electrical connections are made, and help to prevent corrosion.



Always follow the battery manufacturers instructions. Failure to do so may result in damage to the vehicle and/or the electrical system.

A new battery should be supplied with plastic terminal covers. Leave the covers in place when fitting the battery, and remove them one at a time to fit the battery cable clamps.

Refitting is an exact reversal of the removal procedure. If you are in any doubt about fitting a battery seek qualified assistance before attempting to fit the battery.