



VOLVO  
**C30 ELECTRIC**

Web Edition



Supplement to owner's manual





## **VOLVO C30 ELECTRIC**

This manual is a supplement to the normal owner's manual and it covers the differences between the variant of the Volvo C30 described in the owner's manual and a C30 ELECTRIC with electric drive system.

- Read this supplement together with the owner's manual.

When visiting the workshop this manual should be kept on the passenger seat so that the mechanic has access to it.

- Check that this manual has been left in the car following a visit to the workshop.

### **Changes in the manual**

The specifications, design features and illustrations in this supplement are not binding. Volvo Car Corporation reserves the right to make modifications without prior notice.

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# 01

C30 ELECTRIC





## Important to know

### General information about Volvo C30 ELECTRIC

A Volvo C30 ELECTRIC has an electric drive system but is driven and handled in much the same way as a car with a conventional internal combustion engine and automatic transmission.

However, there are some differences that are not too obvious, which are explained in the following pages.

### Safety with regard to batteries

The fuel tank of a conventional car is replaced with batteries in this vehicle, which are fitted in various locations in the car.

There is information about the batteries that is important to know, and which concerns personal safety - read more about it on page 15.

### High voltage and danger from electricity

Under the bonnet and elsewhere in the car are components that work with high voltage electricity. Carelessness may cause danger to personal safety - read more about it on pages 15 and 26.

### IMPORTANT

Pay attention to the fact that several 12V fuses and relays have other functions and values than their equivalents in a conventional fuel-driven C30.

### This manual

### NOTE

Be careful not to remove this manual from the car - should a problem arise then the information required about where and how to seek professional help would be missing, amongst other things. See the section "Service and repair".

### Service and repair

In the event of technical questions and/or the need for assistance, contact the Volvo dealer that handed over/delivered the car. Only workshops with the necessary specialised equipment and specially trained personnel may work on a Volvo C30 ELECTRIC.

### WARNING

- Do not carry out any repairs of your own on this vehicle.
- Service, fault tracing, adjustments and/or repairs on a Volvo C30 ELECTRIC must only be performed by specifically assigned Volvo workshops.

### IMPORTANT

This Volvo C30 ELECTRIC must only be checked and/or repaired at the Volvo workshops specified when the car is collected/handed over. Store these contact names, addresses and telephone numbers safely.

In assistance or advice is required:

- Call the **telephone number** obtained when the car was collected/handed over.

### Recycling

Environmental care is one of Volvo Car Corporation's core values which guides all our activities. We also believe that our customers share our concern for the environment.

As a part of Volvo's environmental work, it is important that the car is recycled in an environmentally sound manner - this applies in particular to its batteries. The car's last owner is

**Important to know**

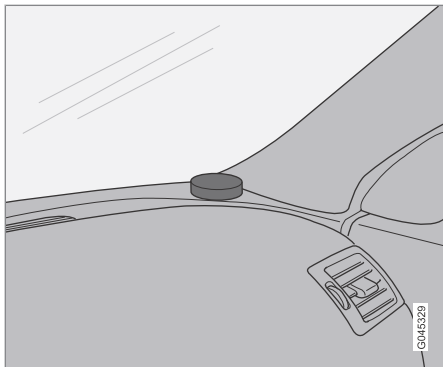
therefore requested to contact a Volvo dealer for referral to a certified/approved recycling facility.



## Telematics - information about the drive system

### Information via Internet/mobile phone

A Volvo C30 ELECTRIC stores information about e.g. charging time, consumption, load and similar.



Antenna for telematics.

Telematics information and certain statistics on driving can be studied via the Internet or a mobile phone<sup>1</sup>.

### Parameters



NOTE: The picture is schematic<sup>2</sup>.

The user can have access to the following parameters:

- The car's GPS position.
- Battery charge status in %.
- The current potential driving distance in the batteries.
- The charging cable is connected.
- Time remaining until fully charged batteries.

- Programmed charging current (6, 8, 10 or 16 A) - see page 17.
- Alarm status.
- Lock status.
- Temperature in the passenger compartment.
- Temperature outside the car.

The specified values are shown in real time<sup>3</sup>.

### Statistics



NOTE: The picture is schematic<sup>2</sup>.

<sup>1</sup> Applies to certain mobile phones - telematics does not work with all models. A Volvo dealer can provide information about which mobile phones can be used.

<sup>2</sup> As technology, functions and software are under continuous development the design of this Internet site is subject to change without prior notice.

<sup>3</sup> Display in real time requires that the mobile phone is within the coverage range of the mobile network.





## Telematics - information about the drive system

Certain statistics for completed journeys are also retrieved:

- Distance in km for each trip.
- Energy consumption in kWh/100 km for each trip.
- Average energy consumption in kWh/100 km for each trip.
- Battery usage in % for each trip.
- Map track for each trip with start and end points.
- Summary of the distance travelled and energy consumption per week.
- Average distance travelled and energy consumption per week.

The indicated statistical values are not current, but appear with a certain delay - see "Limitations".

An iPhone app can show the same information as the Internet.

### Limitations

To save energy, the car's control modules are not permanently activated. This limits the opportunity to send and log system data in real time.

However, telematics information is always displayed in real time<sup>3</sup> in the following cases:

- When the car is used.
- When the batteries are charging.

When the batteries are fully charged the live transmission of system data is shut down. Following which, the telematics system only sends updated data every 4 hours.

### Access via Internet/mobile phone

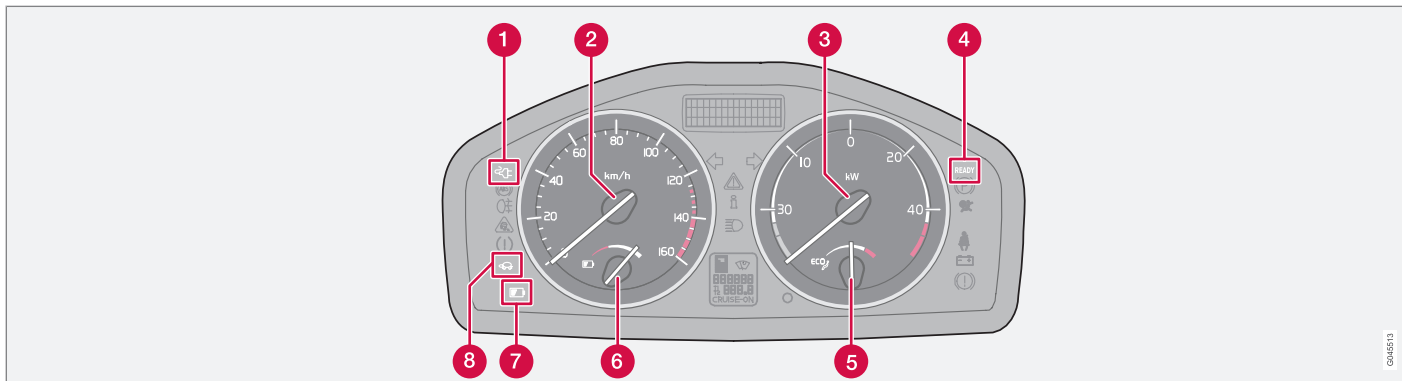
Internet address, codes and user instructions for telematics Internet connection are provided to the user when the car is delivered/collected.

As printed instructions for using telematics on the Internet become quickly obsolete and out-of-date, they are omitted in this manual. Instead, there is always an updated and current version of the user instructions on the telematics Internet site. Study them carefully when first connecting to the Internet.

<sup>3</sup> Display in real time requires that the mobile phone is within the coverage range of the mobile network.



## Combined instrument panel



The following instruments differ from those in a fuel-driven car:

### 2 - Speedometer

Shows the speed of the car.

### WARNING

The maximum permitted speed with this car is 130 km/h. If this speed is exceeded, on a steep downhill slope for example, then the driver must reduce speed with the foot brake.

### 3 - Power meter

Shows the electric motor's power output or recharging to the batteries.

- Left-hand scale (0-30) shows recharging to the batteries.
- Right-hand scale (0-40) shows the electric motor's power output.

### 5 - Energy consumption

Shows how much current is drawn from the batteries to consumers other than the drive motor.

The fewer the functions used the lower the consumption, which means good electricity economy.

It is less desirable for the needle to point far out to the left, as the potential driving distance from the batteries would then be shorter.

Large power consumers in this connection are e.g. heated seats/mirrors, heated rear window and the climate control system during extreme cooling/heating.

### 6 - Battery capacity

Shows the remaining power supply in the batteries. It is equivalent to the "fuel gauge" in a conventional car.

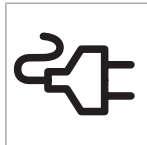


## Combined instrument panel

### Symbols

The following symbols differ from those in a fuel-driven car:

#### 1 - Charging cable



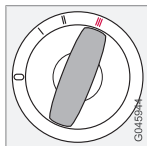
Reminds that the charging cable is connected to the electrical socket. The car cannot be driven when the charging cable is connected!

#### 4 - Ready to drive



The green **READY** lamp means that all systems are ready - the car is thus ready for use.

In parallel with the green lamp illuminating, an acoustic signal ("ping") also verifies that the car is ready to drive.

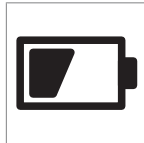


**READY**-The lamp illuminates after the remote control key has been turned to clockwise end position and released (as in normal engine starting) - the lamp goes out after starting driving.

#### NOTE

The **READY** lamp is not illuminated if the charging cable is connected to the car.

#### 7 - Warning for low battery capacity



Illuminates when the batteries have sufficient energy for approx. 10 km.

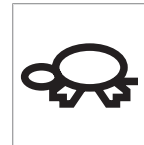
Remember that cold, high outside temperature, steep uphill gradients, heavy loads, sudden acceleration and sudden braking all reduce the potential driving distance that can be obtained from batteries.

#### NOTE

To avoid unplanned stopping after this symbol has illuminated:

- Connect the car as soon as possible to a grounded 230V AC socket in order to recharge the batteries.

#### 8 - Reduced motor power



Illuminates when the batteries start to become discharged or when they cannot supply the power the motor requests.

Can also be illuminated in connection with driving on

steep uphill slopes or in very hot weather (above 30 °C).

The driver does not need to take any special action - the car's electronics protect the motor by temporarily making it slightly "weaker".

#### WARNING

Drive defensively when this symbol is illuminated - for example, it may not be possible temporarily to accelerate rapidly or overtake in a safe manner.



## Driving the car

### General information on driving with electricity

A car with an electrical drive system differs from a fuel-driven car in one essential point - it is totally quiet even when the "engine is running". In other respects it is familiar to the driver.

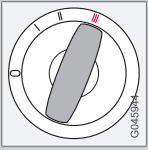
The drive system is monitored and controlled by a computer that assists the driver during most instances by displaying text instructions on the instrument panel's display. Examples of such messages are shown on page 30.

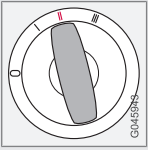
### WARNING

Remember that an electrically-driven car is silent and may therefore be difficult to notice for children, pedestrians, cyclists and animals.

### "Starting the engine" and driving

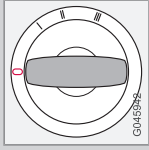
- Put on your seatbelt and check that the driver's seat, steering wheel and mirrors are correctly adjusted.

- Depress the foot brake pedal.
- 

Insert the remote control key in the ignition switch and turn clockwise to key position **III** and release (as with normal engine-starting).
- 

When the indicator lamp **READY** is green the "engine has started" - see no. [4] page 9.
- Check that there is sufficient battery capacity for the planned journey - see no. [6] page 8.
- Select gear position **D/H** or **R**.
- Release the parking brake.
- Release the foot brake and adjust the speed with the "accelerator pedal".

### Stopping and parking

- Stop the car with the foot brake and disengage the "gear" with a gentle push forward on the gear selector - the lamp for gear position changes from **D/H** to **N**.
- 

Apply the parking brake control gently, and turn the remote control key to anti-clockwise end position **0** - the car is now parked with parking brake applied, parking lock activated and "engine switched off".

### Cruise control - brake lights

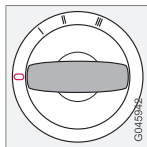
When the cruise control regulates speed the brake lights are lit automatically during "engine braking".



## Driving the car

## Energy saving mode

To save battery capacity, the electrical system goes down to low consumption after approx. 10 minutes of inactivity, e.g. during battery charging and after the car is locked.



With the remote control key in the **0** position, the electrical system is also set in energy saving mode after approx. 10 minutes of inactivity.

**i** NOTE

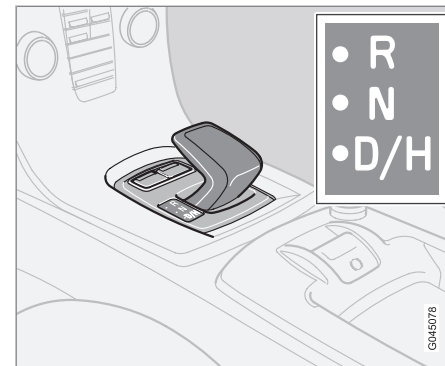
When the electrical system changes over to energy saving mode certain sounds may be heard - this is due to strong relay contacts changing position and is perfectly normal.

The car can be woken up as follows:

Situation	Waking
The car is locked.	Unlock the car.
The charging cable is connected to 230 VAC.	Unplug the charging cable from the car's electrical input socket.
The remote control key is in the ignition switch.	Turn the key to position <b>I</b> or <b>II</b> .

It then takes approx. 7 seconds for the car to be ready to drive after having been "woken up" from energy saving mode.

## Gearbox



*Gear selector and its positions.*

To change gear:

- Press the spring-loaded gear selector forward or backward and then release it.

The gear selector has the following positions:

- **R**: Reverse position.
- **N**: Neutral (neutral position).
- **D/H**: Forward drive - Drive/Highway.

An illuminated lamp at each gear position on the lever panel indicates the gear that is active.



## Driving the car

### **IMPORTANT**

The car must be stationary with the foot brake depressed when changing from **N** to **R** or from **N** to **D/H**.

### **Gear D/H**

The first backward movement of the lever activates forward drive with the gear in the **D** position. The second activates the **H** position. The third activates the **D** position again, and so on.

- **D** - Drive: For city driving. The "engine braking" recharges the batteries.
- **H** - Highway: For driving on main roads. Recharging with "engine braking" is reduced.

When changing between **D** and **H** position the instrument panel's gear shift indicator changes between **D** and **H**.

### **Parking lock**

In order that the car should not accidentally roll away, it has the equivalent to the **P** position in a conventional car's automatic gearbox. The parking lock is operated automatically with the remote control key as follows:

- Parking lock On: Turn the remote control key to position **I**<sup>1</sup> or **0**.
- Parking lock Off: Turn the remote control key to position **II**<sup>1</sup> and depress the foot brake pedal.

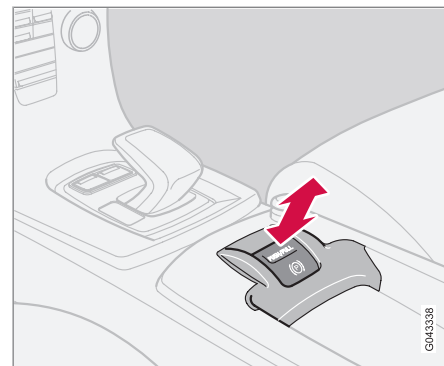
### **WARNING**

Make a habit of always applying the parking brake when parking - the gearbox automatic parking lock is not sufficient to hold the car in all situations.

### **Emergency disengagement of the parking lock**

In the event of a power failure the gearbox's parking lock can be released manually - see page 23.

### **Parking brake**



*Parking brake control button.*

### **Function**

The electric parking brake acts on the rear wheels and when it is working a faint sound may be perceptible. The noise can also be heard during the automatic function checking of the parking brake.

### **Emergency brake**

In an emergency the parking brake can be "pulled" even if the car is moving, but the braking then takes place with reduced power until the car is stationary - only then is the parking brake fully applied.

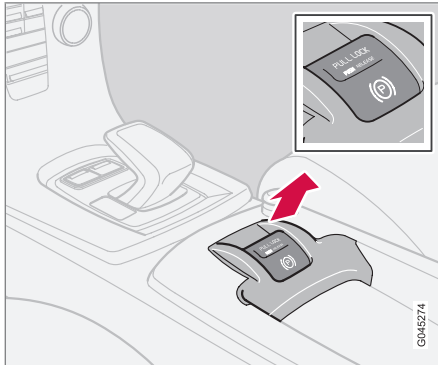
<sup>1</sup> Key positions - see the normal owner's manual or the tables earlier on in this section.



## Driving the car

If the brake control is released then the emergency braking is interrupted.

### Applying the parking brake



Apply: Pull the button.

1. Pull the control slightly up once and release.
  - > The brake is applied when the combined instrument panel's symbol illuminates.
2. Make sure the car is stationary.

### Parking on a hill

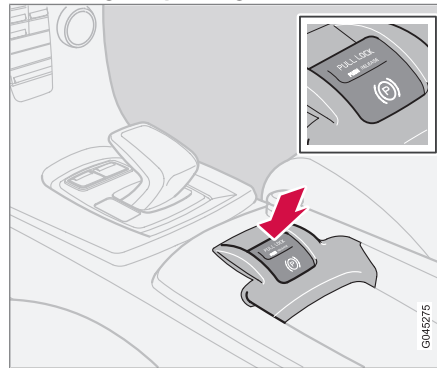
If the car is parked facing uphill:

- Turn the wheels **away from** the kerb.

If the car is parked facing downhill:

- Turn the wheels **towards** the kerb.

### Releasing the parking brake



Release: Press the button.

1. Depress the foot brake pedal firmly.
2. Press the control slightly down once and release.
  - > The combined instrument panel's symbol goes out - the parking brake is released.

### NOTE

The foot brake must be depressed before the parking brake can be released.

### Low battery voltage

If the battery voltage is too low, the parking brake cannot be released or applied. In order to operate the parking brake, an external battery must be connected - see the normal owner's manual, section "Starting and driving > Start assistance > Starting with a donor battery" for how it works.

### Emergency disengagement of the brake

In the event that the parking brake cannot be released (e.g. if the car becomes de-energised and an external battery is not available) it can be released manually/mechanically - see page 23.

### Thinking electrically

Driving a car with batteries as the power source involves a different way of thinking:

- Knowing where battery charging is possible will become an important detail in everyday life.
- Make sure that the batteries are fully charged prior to a longer journey.
- Prioritise choosing a parking space with a 230 V AC grounded socket - then the car can constantly have a "full tank".

### Driving techniques

Bear in mind the following:



## Driving the car

- Never drive through deep pools of water - water must not reach higher than the lower edge of the rim.
- "Engine braking" is more noticeable in **D** position than in a conventional car.

### **i** NOTE

Make a habit of always starting a journey with fully-charged batteries.

### Driving tips

Here is some advice that reduces power consumption (= longer potential driving distance) without the need for travelling time to increase or driving pleasure to decrease.

- Space box and load carriers result in higher wind resistance, which increases power consumption - remove them immediately after use.
- A disengaged AC results in an additional few kilometres driving distance.
- Drive with the recommended air pressure in the tyres.
- Empty the car of unnecessary items - load with a high weight reduces possible driving distance.
- Drive smoothly and avoid sudden braking.

- Use "engine braking" when braking - it recharges the batteries and extends the potential driving distance.
- High speed increases power consumption considerably due to increased wind resistance - doubling speed increases wind resistance 4 times.
- Maintain the car regularly - follow Volvo's recommended service intervals.

### Daytime running lights - DRL

With the light switch in position **A** (Automatic) the DRL lights (Day Running Light) in the spoiler are automatically activated during daytime. This is regulated by a light sensor which switches from DRL daytime running lights to the headlamps' dipped beam at twilight or when daylight is too weak.

DRL lamps use energy-saving LED technology which extends the potential driving distance.

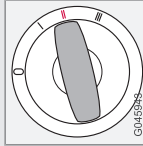
### **i** NOTE

To achieve minimal energy consumption, the rear lights are also switched off when the lighting automatically switches from dipped beam to DRL lights.

- There is further important information on the DRL lights in the normal owner's manual for the car - Read it!

### Towing

Consider the following if the car needs to be moved/manoeuvred by hand or towed:

- |    |   |  |
|----|---|--|
| 1. |  | The remote control key must be in key position <b>II</b> . |
| 2. | Set the gear lever in <b>N</b> position.  |  |
| 3. | Release the parking brake.  |  |

See also the information on towing in the normal owner's manual.

### **!** WARNING

The brakes and power steering do not work if the car is de-energised. Approximately 5 times harder pressure on the brake pedal is required and the steering is considerably heavier than normal.

### **!** IMPORTANT

Avoid using a Volvo C30 ELECTRIC to tow/recover another vehicle.





## Batteries

### Safety



In extreme situations there is the possibility that the batteries may become overheated.

If this occurs, a warning signal will be heard and a red warning symbol will be illuminated on the instrument panel, combined with an explanatory display text.

Stop the car immediately in a safe manner and leave it as soon as possible. Then contact the hirer or a workshop<sup>1</sup>.

### WARNING

Stop and immediately leave the car if the alarm signal sounds and the red warning symbol illuminates together with the display text **STOP SAFELY - LEAVE THE VEHICLE**.

For workshop staff there is special battery information to consider on page 28.

### Charging the batteries

The car is equipped with rechargeable batteries of the Lithium-ion type (Lithium-ion). The batteries are fully maintenance-free but must be recharged from a 230 V AC mains circuit with the charging cable that comes with the car.

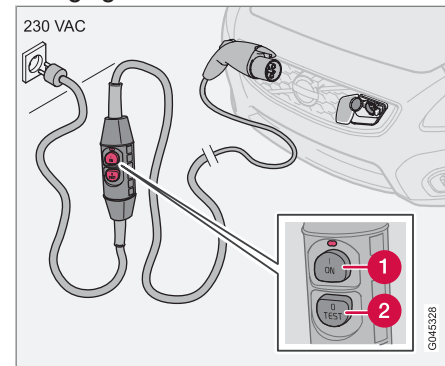
### IMPORTANT

Pay attention to the fact that the car also consumes electricity when it is locked and parked. The monitoring system checks, for example, that the temperature of the batteries is optimal and heats/cool them when necessary.

To ensure that the car is always ready to be driven it should therefore not be parked for longer than 24 hours without being connected to mains electricity.

- Make a habit of always connecting the car to 230V AC when it is parked.

### Charging cable



Charging cable with control unit.

- 1 ON:** The charging cable is activated - the indicator lamp illuminates which verifies that the mains voltage is routed to the car.
- 2 TEST:** The charging cable is deactivated - the indicator lamp goes out and this verifies that the voltage is no longer routed to the car.

Pressing **TEST** once simulates a ground fault and the built-in ground fault breaker **should** then trigger and thereby prevent the charging cable routing mains voltage to the car. Should that not take place: Immediately remove the charging cable from the

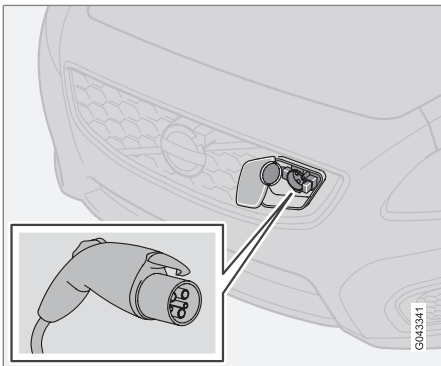
<sup>1</sup> Note that only specific Volvo workshops may carry out work on this car, see page 4.



## Batteries

electrical socket and then contact the designated workshop for the car - see page 4.

### Connect the car to the mains circuit



Electrical socket for 230 VAC and 6/8/10/16 A.

The car is connected to the 230 V AC mains circuit with the charging cable as follows:

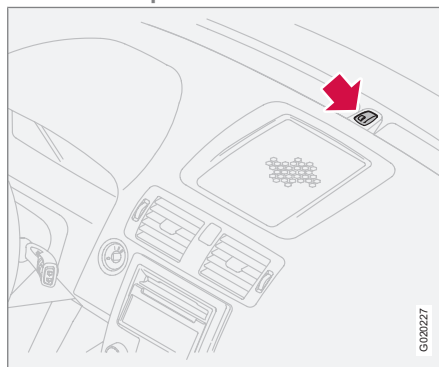
1. Connect the charging cable's wall connector into a grounded 230 V AC socket.
2. Open the hatch in the car's grille, then press the button on the side of the electrical socket's internal protective cap so that it folds up.
3. Then connect the charging cable's plug to the car's electrical socket.

4. Press the **ON** button (1) on the charging cable's integrated control box - its indicator lamp should then illuminate which verifies that the charging cable is routing mains voltage and that the car's batteries are being recharged.

### **WARNING**

Do not connect the car's electrical system to high voltage with an electrical cable other than the charging cable supplied with the car.

### Indicator lamp



Indicator lamp for charge status.

During charging, the status of battery charging is indicated with a blue indicator lamp on the windscreen's alarm LED.

- Constant glow - the batteries are fully charged.
- Flashing - the batteries are being recharged.
- Off - the batteries are not receiving charge.

### Disconnect the car from the mains circuit.

To disconnect the car from the 230 V AC mains circuit:

1. Press the charging cable's **TEST** button, - the control module's lamp goes out and the cable is then de-energised.
2. Push in the release button on the plug and pull it right out of the car's electrical socket.
3. Close the inner cover over the connector pins.
4. Close the outer cover.
5. Unplug the charging cable's connector from the 230 V AC socket.
6. Store the charging cable in suitable place in the car.



## Batteries

## Control unit



The charging cable's control unit has an integrated ground fault breaker. Adjacent to the unit's **ON** button (1) is an indicator lamp - it can have the following meanings:

Lamp	Information
On	The charging cable is routing electricity and the car's batteries are being recharged.
Off	The ground fault breaker has triggered - there may be a fault in the charging cable or in the car's electrical system.
Off	The 230 V AC mains circuit's fuse may have been tripped - check the mains fuse.

Lamp	Information
Off	The 230 V AC mains circuit's fuse may have been tripped - check that the mains fuse value is programmed into the car's electrical system (see next section "Charging current").
Off	The electric socket has no ground connection - connect the charging cable into a grounded electrical socket.

**WARNING**

In the event of malfunctioning or the slightest doubt about a function - contact the Volvo workshop that was specified when the car was delivered (see page 4).

- Never carry out fault diagnosis or repairs yourself.

**Charging current**

Before the car's electrical system is connected to a grounded 230 V AC mains circuit it is important that the car receives correct information about the current intensity that the 230 V system has. The setting is made with the left-hand stalk switch thumbwheel:

- Select 6, 8, 10 or 16 A from the menu. (For more information, see page 30.)

**IMPORTANT**

Ensure that the correct fuse value (6/8/10/16 A) is specified for the car's battery charging.

**Tip**

Not all 230 V sockets state their level of fuse protection. If the socket's capacity is unknown, choose one of the lower alternatives - 6 A or 8 A - to avoid the risk that the mains fuse is tripped after a short time. It is better that the batteries receive low and slow charging than no charging at all.

The following example explains the logic:

**Example 1**

If the car is connected to 230 V/10 A and the control program is set at 16 A, the car will attempt to draw 16 A from the 230 V mains circuit - after a while the overloaded 10 A fuse will be tripped and battery charging stopped.

**Example 2**

If the car is connected to 230 V/10 A but the control program is set at 10 A, the car will draw 10 A from the mains circuit - if further consumers are connected to the same socket then there is a risk that the fuse will be overloaded



## Batteries

and tripped, at which point battery charging is stopped.

### Example 3

If the car is connected to 230 V/10 A and the control program is set at 6 A, the car will only draw 6 A from the 230 V mains circuit - the charging will certainly take longer but then additional consumers can be connected to the same socket at the same time.

### NOTE

The higher the amperage of the charging current combined with the same amperage in the control program, the faster the batteries will become fully charged.

### Charging time

The following table shows the approximate time to recharge discharged batteries using 230 V AC.

### NOTE

Make it a habit to connect the car to 230V AC after each journey - this way the batteries are also trickle-charged during longer periods of inactive time.

Charging current (A) <sup>A</sup>	Charging time (h) <sup>B</sup>
6	at least 19
8	15
10	11
16	7

<sup>A</sup> Ampere

<sup>B</sup> hour

### NOTE

The table's charging times are approximate. In very cold or hot weather part of the charging current will be used to heat/cool the batteries and the passenger compartment.

### NOTE

In addition to high current take-off in the passenger compartment, sudden acceleration and braking, high speed, heavy loads and uphill gradients also reduce the possible driving distance.

### Battery capacity

People driving electric cars have to think about energy conservation - just like at home.

The more consumers there are (stereo, electric heating in windows/mirrors/seats, very cold air from the climate control system, etc.) that are switched on - the shorter the potential driving distance.

Fully charged batteries provide approx. 24 kWh and can power the car for up to 150 km under normal conditions.



## Climate

### General information on the climate control system

The climate control system works with a hydronic heating system which is powered by electricity or fuel and is operated using the climate control panel's controls. Cooling (AC) is generated by an electrically-driven compressor.

The car's computer system checks battery temperature and maintains it within the desired range.

### Operation

#### Fuel

The heater consumes approx. 1 litre/hour.

#### **i** NOTE

The fuel tank must contain at least 1 litre for the heater to start - a display text warns if the level is too low.

The heater generates condensation water which runs down to the ground under the car.

#### Filling with fuel

The fuel-driven heating system is available in two variants - the difference is in the fuel which is specified on the inside of the fuel filler flap in accordance with the following illustrations:



Cars with fuel system for ethanol E85.



Cars with fuel system for 95 octane petrol.

#### **i** IMPORTANT

The car is supplied with one of the following fuel-driven heating systems:

- Bioethanol E85
- 95 octane petrol

These two fuels must never be mixed up or mixed together with each other - so check that the correct fuel is filled in the tank.

#### Battery or fuel

The climate control system is powered either by the batteries or fuel - the driver can choose which should be prioritised. For longer driving distances the recommendation is to run the passenger compartment heater with fuel because electrically generated heat reduces the driving distance.

Proceed as follows:

1. Scroll to the menu bar **FUEL HEATER AUTO** with the left-hand stalk switch thumbwheel.
  2. Select and activate **ON** or **OFF** with a long press on the stalk switch **RESET** button.
- The option **FUEL HEATER AUTO ON** provides fuel-driven heat source.
  - The option **FUEL HEATER AUTO OFF** provides electrical heat source.



## Climate

### **WARNING**

The heater generates unhealthy emissions during operation with fuel. Program the timer for electric operation when the car is used - or parked - in an enclosed/unventilated area.

### Timer-set heating/cooling

The climate control system can be pre-programmed to heat the passenger compartment - within 24 hours - before setting off.

The time that is programmed refers to when the car shall be used. Proceed as follows:

1. Turn the remote control key to key position **I**.
2. Select the **PRECONDITIONI. TIMER 1** --:-- menu with left-hand stalk switch thumbwheel.
3. Briefly press **RESET** - the character position for hour starts flashing.
4. Select the required hour with the thumbwheel and briefly press **RESET** - the character position for minutes starts flashing.
5. Select the required minute and briefly press **RESET**.
6. Finish with a long press on **RESET** - programming is complete and the display shows **TIMER ACTIVE FOR PRECONDITIONI..**

Following which, the climate system automatically selects a suitable start time.

There is more information about programming the time on the normal owner's manual. Note then that what is designated in the C30 ELECTRIC as **PRECONDITIONI. TIMER 1** is the equivalent of **PARK HEAT TIMER 1** in a conventional C30.

On page 30 in this supplement there are examples of more climate-related menus.

### Timer-set heating/cooling with the car connected to mains electricity

When the car is connected to mains electricity, the batteries will always be used as the energy source for the heating.

- If necessary, the passenger compartment is cooled with the AC.

### Timer-set heating without connection to mains electricity

When the car is not connected to mains electricity fuel is used as the heat source. In which case, please note the following:

### **NOTE**

- When the car is not connected to mains electricity the "Timer-set heating" can only be activated if the **FUEL HEATER AUTO - ON** menu option is selected.
- Cooling of the passenger compartment via AC is not possible when the car is not connected to mains electricity.

### Continuous heating/cooling

If the driver wants the car warmed up or cooled down in advance, but does not know what time the car will be used, then the climate control system can be programmed to heat/cool continuously.

In which case, proceed as follows:

1. Connect the car to the 230 V AC mains circuit.
2. Follow the preceding instructions for programming and select the time **00:00** for **TIMER 1** or **TIMER 2** - the climate control system will then keep the car constantly "ready to start" with heated/cooled passenger compartment and fully charged batteries.

The "Continuous heating/cooling" function is active until the time **00:00** is replaced with --:-- or another time.


** NOTE**

Continuous heating/cooling is only possible when the car is connected to mains electricity.

**Heating and/or cooling**

The following tables show in which situations it is possible to generate heating or cooling and which settings need to be made.

**In outdoor temperatures below 3 °C**

Situation		Fuel heater Auto <sup>A</sup>	Heating <sup>B</sup>	Cooling <sup>B</sup>
During driving		ON	✓	–
		OFF	✓	–
Parked	Connected 230 VAC	ON	✓	–
		OFF	✓	–
	Not connected	ON	✓	–
		OFF	–	–

<sup>A</sup> Setting in trip computer, see page 30.

<sup>B</sup> ✓ = Possible function.

**In outdoor temperatures between 3 and 15 °C**

Situation		Fuel heater Auto <sup>A</sup>	Heating <sup>B</sup>	Cooling <sup>B</sup>
During driving		ON	✓	✓
		OFF	✓	✓



## Climate

Situation		Fuel heater Auto <sup>A</sup>	Heating <sup>B</sup>	Cooling <sup>B</sup>
Parked	Connected 230 VAC	ON	✓	✓
		OFF	✓	✓
	Not connected	ON	✓	–
		OFF	–	–

<sup>A</sup> Setting in trip computer, see page 30.

<sup>B</sup> ✓ = Possible function.

### In outdoor temperatures above 15 °C

Situation		Fuel heater Auto <sup>A</sup>	Heating <sup>B</sup>	Cooling <sup>B</sup>
During driving		ON	✓	✓
		OFF	✓	✓
Parked	Connected 230 VAC	ON	✓	✓
		OFF	✓	✓
	Not connected	ON	–	–
		OFF	–	–

<sup>A</sup> Setting in trip computer, see page 30.

<sup>B</sup> ✓ = Possible function.

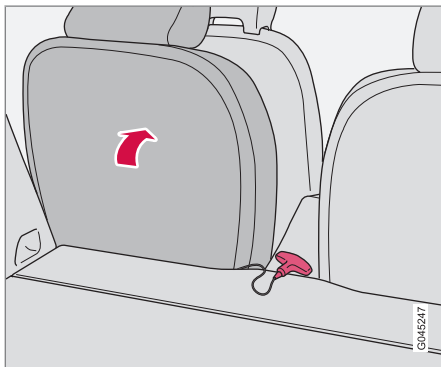




## Maintenance and service

### Parking brake - emergency disengagement

In the event that the parking brake cannot be released (e.g. if the car becomes de-energised) it can be released manually/mechanically to make it possible to move the car - proceed as follows:



1. First, make sure that the rear wheels are blocked in some way, e.g. with chocks or similar.
2. Fold the backrest on the left-hand rear seat.
3. Look between the backrest and under the cargo area floor and pull out the line with handle.

4. Grasp the handle and gently pull up, pull until a "click" can be sensed - by these means the parking brake is released and the car can be moved.

### WARNING

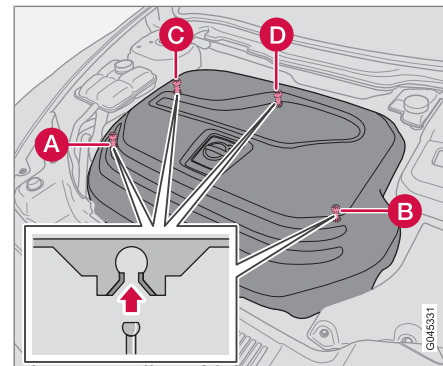
Check the wheels before the parking brake is disengaged manually - otherwise the car could start to move uncontrollably.

- Use chocks for the rear wheels.

### Parking lock - manual release

In the event of power failure with the gear selector in **P** position, the car cannot be moved. If the car then needs be rolled away or recovered, the gearbox's mechanical inhibitor can be disengaged manually. This requires a so-called "Recovery cable" which comes with the car and is stored in the cargo area.

First, the electric motor's cover must be removed - proceed as follows:



*The motor cover's attachment points.*

1. Grasp the edge of the cover at (A) and (B) and pull it straight up a few centimetres - the cover is released from its two front studs.
2. Grasp underneath the edge of the cover at (C) and (D) and pull it straight up a few centimetres - the cover is released from its two rear studs and is now fully released.
3. Set the cover aside.

### WARNING

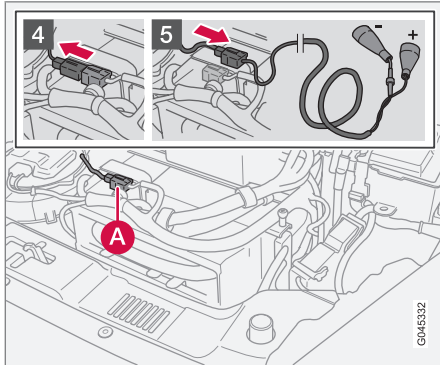
There is little space around the electric motor's cover, and there are sharp edges.

- Use protective gloves.



## Maintenance and service

Following this the Recovery cable is connected - proceed as follows:



Connection point for the Recovery cable.

### ! IMPORTANT

Hold the connectors when disattaching - **do not** hold and pull the electrical cables.

1. First, make sure that the rear wheels are blocked in some way, e.g. with chocks or similar.
2. The check that the parking brake is released. See separate instructions in the section "Parking brake - emergency disengagement".

3. Locate the Recovery cable's connection point (A).
4. Press and release the catch for the connectors and pull out the right-hand half to the right (seen from the driver's seat).
5. Connect the Recovery cable's connector in the loosened "right-hand connector half" - press the connector halves together until they lock with a "click".
6. Connect the Recovery cable's **black** clamp to the negative terminal on a 12 V DC battery.
7. Then hold the Recovery cable's **red** clamp to the positive terminal of the 12 V DC battery for a few seconds - a sound can be perceived from the electric motor as it disengages the inhibitor.
8. Check that the car can be rolled a few decimetres forward/backward in order to verify that the inhibitor has released.
9. Remove the Recovery cable from the battery.
10. **NOTE: Do not** reconnect the car's connectors to the now "empty" connector half (A) again - leave it for the Volvo workshop where the car is recovered to.
11. Align the cover's 4 rubber caps over each stud and push the cover into place.
12. Refit the Recovery cable in the cargo area.

If this process does not work - contact a workshop, see page 4 for information on a suitable workshop.

### ! WARNING

Check the wheels before the parking lock is disengaged manually with the Recovery cable - otherwise the car could start to move uncontrollably.

- Use chocks for the rear wheels.

### Washing the car

As the car is equipped with components designed for connection to 230 V AC high-voltage, it is very important that these parts are not exposed to moisture, fluids and/or aggressive chemicals and/or solvents.

### ! IMPORTANT

Do not wash the space under the bonnet with a high-pressure unit.

### automatic car wash

In an automatic car wash - where the car is towed through the cleaning system - the wheels must be able to roll freely. In which case, proceed as follows:



## Maintenance and service

1. Drive into the washing facility and hold the car with the foot brake.
2. With gear position **D** still activated: Turn the remote control key to key position **0** - see page 11.
3. Then turn the remote control key back to position **II** and take your foot off the foot brake - the car can now roll freely.

After washing is finished:

1. Depress the foot brake.
2. Activate **D** position with the gear selector and drive out of the washing facility.

## Wheels & tyres

### Dimension

When fitting new tyres, the same type and make as originally fitted in the factory are recommended. If the event of uncertainty - consult the workshop that was specified when the car was collected/handed over - see page 4.

Approved dimensions:

- 205/55R16

### Tyre pressure

Recommended pressure in all tyres:

- 250 kPa.

## Payload

For information on the permitted maximum weights - see the decal on the right-hand door pillar and the registration document.

## roof load

Fitting load carriers on the roof is not recommended - the increased wind resistance reduces the potential driving distance drastically.

## Trailers

It is not possible to fit a towbar.

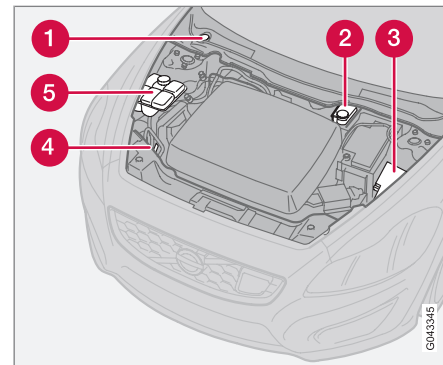
## Under the bonnet

One of the car's batteries and several of the components included in the car's electric drive system are located under the bonnet. Exercise caution in this area and only touch anything that is related to normal maintenance.

### NOTE

In the event of uncertainty over which self-service operations may/can be carried out by the driver:

- Ask for advice from the workshop that was specified when the car was collected/handed over - see page 4.



Normal checking points - other parts require specialist expertise.

- 1 Checking/refilling washer fluid.
  - 2 Checking/refilling brake fluid.
  - 3 Fuses (see page 26).
  - 4 Checking/filling power steering fluid.
  - 5 Checking/refilling water for the cooling and climate control systems.
- Avoid spills - clean up thoroughly if they do occur.



## Maintenance and service

### WARNING

Several components in the car operate with lethal high-voltage electricity.

- Do not touch anything under the bonnet that is not clearly described in the owner's manual or in this supplement.
- Exercise caution when checking/refilling fluids under the bonnet.

### Self service

Some repair work on the car can be carried out independently by the car owner provided that he/she possesses the necessary knowledge.

For example:

- changing wheels
- replacing light bulbs
- replacing the 12 V DC battery
- replacing windscreen wiper blades
- changing 12 V fuses in the "engine compartment" and passenger compartment
- replacing wear parts in the brake system (e.g. discs and linings).

See the normal owner's manual for more information on these points.

### Danger electricity

Be aware that parts of the car's electrical system work with 400 V DC high voltage! For this

reason, it is absolutely forbidden, for example, to:

- open boxes/control modules
- remove panels under the car
- work with/change the car's electrical system
- work with orange cables (400 V system)
- replace brake pipes that are routed into the "engine compartment".

This and similar work must only be carried out by special workshops with specially trained personnel - see page 4.

### WARNING

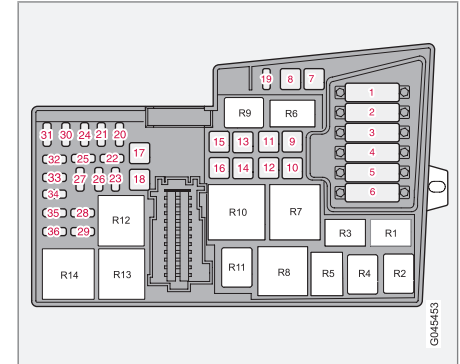


Sections of the car containing high voltage are marked with the adjacent symbol.

Pay attention to the fact that the orange cables carry lethal high voltage.

### Fuses

Several of the fuses described in the normal owner's manual are missing in a Volvo C30 ELECTRIC or protect other functions.



Fuse and relay box under the bonnet.

Fuses with **bold no.** have another function related to them in a fuel-driven car:

N o.	Component	A
1	Cooling fan	50
2	Power steering	80



## Maintenance and service

N o.	Component	A
3	Supply to fuse box in the passenger compartment	60
4	Supply to fuse box in the passenger compartment	60
5	PTC element, air preheater	80
6	Electric parking brake	30
7	ABS pump	40
8	ABS valves	20
9	Motor functions	30
10	ventilation fan	40
11	headlamp washer	20
12	heated rear window	30
13	Vacuum pump, brakes	40
14	Battery climate unit	40
15	Central Software Module (CSM) <sup>A</sup> with slave (SCSM) <sup>B</sup>	30
16	Infotainment	30
17	windscreen wiper	30

N o.	Component	A
18	Supply to fuse box in the passenger compartment	40
19	–	–
20	horn	15
21	Fuel-driven additional heater/passenger compartment heater	20
22	Central Software Module (CSM) <sup>A</sup>	7.5
23	Control module, electric vehicle R7+R11	5
24	Control unit, batteries	10
25	Water pumps	20
26	ignition switch	15
27	Advanced Information Control Module (AICM) <sup>C</sup>	7.5
28	–	–
29	Daytime Running Light (DRL) <sup>D</sup>	15

N o.	Component	A
30	Electric Vehicle Module (EVM) <sup>E</sup> and Engine Control Module (ECM) <sup>F</sup>	7.5
31	Emergency disconnection, batteries 400 V	10
32	Engine Control Module (ECM) <sup>F</sup>	5
33	gear selector	5
34	–	–
35	–	–
36	Accelerator pedal sensor	10

- A CSM: Central Software Module  
 B SCSM: Slave to Central Software Module  
 C AICM: Advanced Information Control Module  
 D DRL: Daytime Running Light  
 E EVM: Electric Vehicle Module  
 F ECM: Engine Control Module



## Maintenance and service

### Relays

Relays with **bold no.** have another function related to them in a fuel-driven car:

No.	Component
<b>R1</b>	–
R2	horn
<b>R3</b>	–
R4	DRL lights
<b>R5</b>	Emergency disconnection, batteries 400 V
<b>R6</b>	Batteries 400 V
<b>R7</b>	Central Software Module (CSM) <sup>A</sup> with slave (SCSM) <sup>B</sup>
R8	–
R9	headlamp washer
R10	heated rear window
<b>R11</b>	Advanced Information Control Module (AICM) <sup>C</sup>
R12	–

No.	Component
<b>R13</b>	Vacuum pump, brakes
<b>R14</b>	Motor functions

A CSM: Central Software Module  
 B SCSM: Slave to Central Software Module  
 C AICM: Advanced Information Control Module

### Workshop information about batteries

#### Oven drying after painting

In the event that the car shall be painted, it is important that the batteries are not exposed to temperatures higher than 80 °C, so great care must be taken with oven drying.

In which case, also bear in mind that at a battery temperature above 45 °C the car's climate control system will attempt to lower the temperature - so the following applies:

#### IMPORTANT

The car must be connected to 230V AC with the original charging cable during the whole the time in a drying facility.

#### Infra-red heat

A Volvo C30 ELECTRIC can be placed in a drying facility with infra-red heat for a maximum of 2 hours, provided that the temperature does not exceed 70 °C.

#### "Hot room"

A Volvo C30 ELECTRIC must **not** be placed in a drying facility of the "hot room" type because they dry car paint over a longer time.

### Weights and specifications

Passenger compartment heater	
Fuel tank (volume)	approx. 14.5 litres
Consumption, (per hour)	approx. 1.0 litres
Consumption, electricity (per hour)	approx. 5.0 kWh

Electric drive motor	
Continuous output	40 kW/54 hp
Maximum output	82 kW/110 hp
Maximum power output	approx. 30 seconds
Torque	223 Nm
Hill climbing capacity	>20 %

**Maintenance and service****Batteries for drive motor**

Type	Lithium-ion <sup>A</sup>
Continuous voltage	280-400 V DC
Power supply	approx. 24 kWh
Service life	approx. 3000 cycles
Charging time for discharged batteries	see table page 18

<sup>A</sup> Lithium-ion

** NOTE**

At outside temperatures below -10 °C or above 30 °C the car's functions cannot be fully guaranteed, as the capacity of the batteries is reduced outside of this temperature range.



## Display messages and menus

### Text information in the display

Different messages and information can be seen in the combined instrument panel's display - sometimes together with some of the symbols on page 9 or with these: or .

### trip computer

One of the following menus can be selected for permanent display in the trip computer:

#### trip computer

--.- KWh/100 KM - INSTANTANEOUS

--.- KWh/100 KM - AVERAGE

--.- KILOMETRES - RANGE

- Select menu with left-hand stalk switch thumbwheel.

### Settings

The following adjustments/settings can be made:

#### Menus/settings

--.- LITRES LEFT - FUEL HEATER

DIRECT START FUEL HEAT. - ON/OFF

FUEL HEATER AUTO - ON/OFF

#### Menus/settings

PRECONDITIONI. TIMER 1 --:-- ON/OFF<sup>A</sup>

PRECONDITIONI. TIMER 2 --:-- ON/OFF<sup>B</sup>

CHARGING CURRENT 6A

CHARGING CURRENT 8A

CHARGING CURRENT 10A

CHARGING CURRENT 16A

<sup>A</sup> Preconditioning: timer-set heating/cooling of the passenger compartment.

<sup>B</sup> Alternatively, the time for the timer-set heating of the passenger compartment.

- Use the left-hand stalk switch thumbwheel to select the required menu - a short press on the stalk switch **RESET** button gives **OFF** position, a long press gives **ON** position.

### Information with action

Several messages are shown when something in the car does not have full functionality. These messages require that a workshop be contacted - see page 4 for information on a suitable workshop. Examples of such messages are:

#### Information in the display

AC SERV. REQUIRED

BCU<sup>A</sup> SER. REQUIRED

BATTERY FAILURE - REDUCED FUNCTION

BATTERY FAILURE - SERVICE REQUIRED

BATTERY FAILURE - SERVICE URGENT

VEHICLE FAILURE - REDUCED FUNCTION

VEHICLE FAILURE - SERVICE REQUIRED

HIGH MOTOR TEMP - SERVICE URGENT

MOTOR - REDUCED FUNCTION

MOTOR FAILURE - SERVICE REQUIRED

PARKING BRAKE - REDUCED FUNCTION

PARKING BRAKE - SERVICE REQUIRED

P-LOCK FAILURE - SERVICE URGENT

STOP SAFELY - LEAVE THE VEHICLE

<sup>A</sup> BCU: Battery Climate Unit.

- A text message can be acknowledged by briefly pressing the **READ** button on the left-hand stalk switch.





## Display messages and menus

### Information without action

Many messages are a prompt to help the driver, or to show the status of a particular function. Here are some examples:

#### Information in the display

BRAKE TO RELEASE P-LOCK

BRAKE TO CHANGE GEAR

BRAKE VACUUM LOW

FUEL HEATER - LOW LEVEL

FUEL HEATER - EMPTY

CHARGING CABLE CONNECTED

LOW BATTERY

LOW BATTERY VOLTAGE

PARKING BRAKE ACTIVATED

PARKING BRAKE - MISUSE

STARTING UP

REDUCE SPEED

REDUCE SPEED TO CHANGE GEAR

FUEL FILLER CAP OPEN/LOOSE

#### Information in the display

TIMER IS SET FOR PRECONDITIONI.

TURN KEY TO START

HEATER STOPPED - LOW FUEL LEVEL

- A text message can be acknowledged by briefly pressing the **READ** button on the left-hand stalk switch.



# 01 C30 ELECTRIC

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